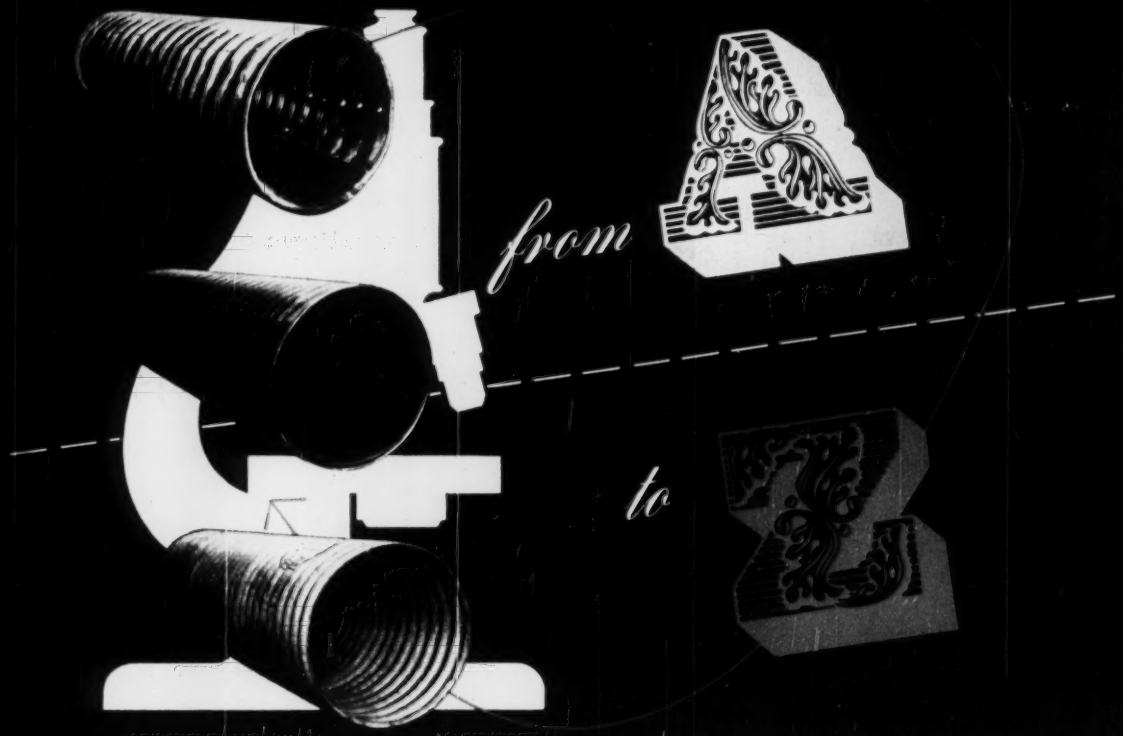
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION



They covered corrosion from A to Z

"A" for Asbestos . . . "Z" for Zinc. It means there is an Armco Product to meet varying requirements of durability and service life. You get exactly what you need . . . save money in the bargain.

Armco engineers reasoned that economical drainage meant having the right product for specific jobs. Plain Galvanized Corrugated Metal Pipe was ideal for normal conditions. Then they developed PAVED INVERT Pipe to combat erosion. A full bituminous coating gave further protection against corrosion. The ultimate in durability was achieved with Armco ASBESTOS-BONDED Pipe. Millions of asbestos fibers embedded in the zinc coating and thoroughly impregnated with a special saturant and seal coat provide great resistance to acid, alkaline and saline conditions. Individually or in any desired combination these products are the efficient, economical answer to almost every drainage service need.

Creating better products to meet specific needs has been the objective at Armco for more than 40 years. A few examples are HEE-CORE Perforated Pipe, STEELOX Buildings, FLEX-BEAM Guardrail, PIPE ARCH and sturdy, MULTI-PLATE Bridges.

Today you can bring your drainage and construction problems to Armco with full assurance you will receive all the benefits of long experience, extensive research facilities, and a real interest in helping you solve your most difficult problems.

Armco has a complete range of engineered products and convenient, authoritative data to help you. If your problem is difficult or unusual why not talk it over with us?

ARMCO

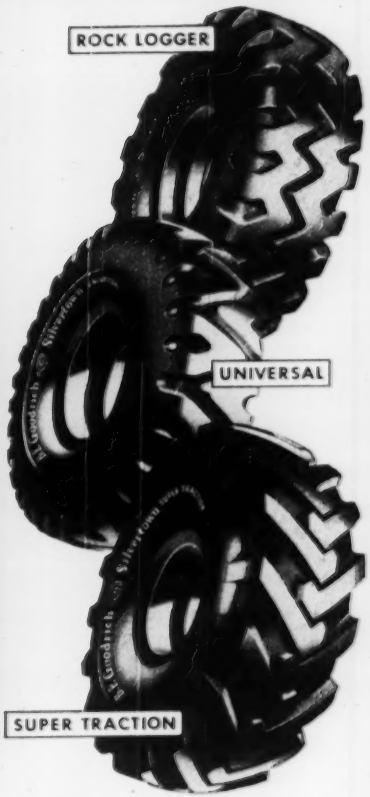
ARMCO DRAINAGE & METAL PRODUCTS, INC.

MIDDLETOWN, OHIO • OFFICES AND PLANTS IN PRINCIPAL CITIES

SUBSIDIARY OF ARMCO STEEL CORPORATION

Structural Plate Pipe and Arches ★ Corrugated Metal Pipe ★ Welded Steel Pipe
FLEX-BEAM Guardrail ★ Water Control Gates ★ Retaining Walls ★ STEELOX Buildings
Sheeting ★ Tunnel Liner ★ Subdrainage Pipe ★ End Sections ★ Pipe Piling and Pile Shells

B.F.Goodrich



The Super Traction, Universal and Rock Logger Silvertowns shown at right are available in All-Nylon cord construction — ideal for tough construction projects.

ALL-NYLON tires offer terrific savings; no flex breaks, no bruise breaks, no blowouts!

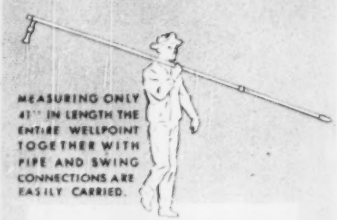
YOU can judge for yourself the tremendous savings possible from tires that do not blow out or develop bruise and flex breaks. That's exactly the record run up by BFG ALL-NYLON tires . . . a record proved by more than 2 years' actual use by our customers. To date, not a single ALL-NYLON Silvertown has blown out or been found to have bruise or flex breaks!

Strong, elastic nylon cord helps you make savings in other B. F. Goodrich truck tires, too. *All* truck tires with 8 or more plies have the popular *nylon shock shield*. This exclusive feature (U.S. Patent No. 2498859) is built in between tread rubber and the cord body of BFG tires. Under impact, the nylon shock shield distributes and absorbs the shock; shields the cord body. And there is a double shock shield for double protection in large, off-the-road tires.

Only B. F. Goodrich gives you the added protection of the nylon shock shield; the added savings from (1) longer tire life (2) increased bruise resistance (3) decreased danger of tread separation (4) more recappable tires. And nylon shock shield costs no extra —you pay no premium!

There's a specially designed BFG highway truck, off-the-road or grader tire for every need. Call your B. F. Goodrich Dealer or *The B. F. Goodrich Company, Akron, Ohio.*

dewater the Complete way



MEASURING ONLY 41" IN LENGTH THE ENTIRE WELLPOINT TOGETHER WITH PIPE AND SWING CONNECTIONS ARE EASILY CARRIED.

When you strike bad water conditions unexpectedly, call "Complete"! We're ready for emergencies—with the experience to supervise, the personnel to service, and the patented fluted tube Wellpoint to solve the worst of wet water conditions. Wherever it is possible to operate wellpoints, only "COMPLETE" gives Complete assurance of Complete success!

Write today for Complete catalog Dept ER

COMPLETE MACHINERY & EQUIPMENT COMPANY, INC.
36-40 11th STREET
LONG ISLAND CITY, N. Y.

Branch Warehouse
3rd AVE. & ADAMS ST.
GARY, INDIANA

COMPLETE WELLPOINT SYSTEMS

FOR SALE OR RENT

ENGINEERING NEWS-RECORD

Volume 144 APRIL 27, 1950 No. 17

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

Concrete Cofferdam Wales Give Maximum Work Space. F. E. Jenkins ... 32
Record Size Expansion Joints for Davis Dam Penstocks ... 35
Some Principles of Lightning Protection ... E. Beck ... 36
Dredges Fit Through Schuylkill River Locks ... F. J. Schmidt ... 38
Old Bridge Piers Hang in Underpinning ... 40
Small Sewage Plant Has Unique Layout ... 42
Grading Job Overruns 1,500 Percent ... 45
Pipe-Culvert Base Keeps Road Dry ... 46
Perspective—Next Step in Welfare ... 116

DEPARTMENTS

Construction Week ... 17
Construction Trends ... 19
Editorials ... 21
News of the Week ... 25
Reader Comment ... 47
Field and Office ... 50
Developments Abroad ... 55
Municipal Affairs ... 56
Men and Jobs ... 64
Education and Research ... 71
Election and Activities ... 72
Obituaries ... 75
Unit Prices ... 77
Construction Reports ... 78
New Products ... 106

Number of Copies of this issue printed 45,605

Managing Editor—Eugene E. Halitos, Jr.

Associate Editors—*New York*, V. T. Boughton (senior associate), J. C. Bunstead, R. H. Dodge, R. N. Larkin, F. S. Merritt; *Cleveland*, J. R. Carr; *San Francisco*, N. A. Bowers, L. L. Wise; *Washington*, V. B. Smith.

Assistant Editors—*New York*, Melvin Dean, Arthur J. Fox, Jr., T. D. MacGregor.

Staff Assistants—Ruth Imler, *Research*; Ethel Lyon, *Makeup*; Henry Lefer, *Production*; Betty Pratt, *Layout*; Louise Barker, Ruth McCarthy, Madaleen Smith, *Editorial*.

Business News—Elsie Eaves, *Manager*; E. M. Huber, Jane Lucia, J. A. Mahoney, Frederick Lee Moore, Jr., M. W. Rossiter, M. Wetzel.

Contributing Editor—Edward J. Cleary.

Domestic News Bureau—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 21 cities in the United States, Canada and Mexico.

Foreign News Bureaus—London, Frankfurt, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City. *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT E. BOEIN
Publisher

Member ABC Member ABP

April 27, 1950 ENGINEERING NEWS-RECORD Vol. 144—No. 17

Publication Office 99-129 N. Broadway, Albany 1, N. Y.

Executive and Editorial Offices 330 West 42nd St., New York 36, N. Y.

Copyright 1950 by McGraw-Hill Publishing Co. Inc. All Rights Reserved. Published every Thursday by McGraw-Hill Publishing Co. Inc. James H. McGraw (1860-1948), Founder. CURTIS W. McGRAW, President. MALCOLM CHICKERING, Executive Vice President. JOSEPH A. GERARDI, Secretary and Treasurer. PAUL MONTGOMERY, Senior Vice President. NELSON BOND, Vice President and Director of Advertising. J. E. BLACKBURN, JR., Vice President and Director of Circulation. MASON BRITT, Vice President.

Subscriptions to ENGINEERING NEWS-RECORD and accepted only as follows: Price per copy, 25¢. Payable in advance. Subscription rates: Continental U. S. A. and possessions, $5; Canada, $6; Pan American, $10; all other countries, $20. Address all communications about subscriptions to Director of Circulation, 330 West 42nd St., New York 36, N. Y.

Please indicate position and company connection in all subscription orders.

Entered as Second Class matter October 25, 1917, at the Post Office at Albany, N. Y., under Act of March 3, 1879. Printed in U. S. A.

AND WITH A NORTHWEST "it's a Pipe"

22 NORTHWESTS for LOCK JOINT PIPE COMPANY

TAKE all the pipe the Lock Joint Pipe Company has made and reduce it to 1 inch diameter and it comes to over 800 million feet — more than six times around the world. That is a lot of pipe no matter where you lay it.

All down through the years the Lock Joint Pipe Company has used Northwest Pullshovels and while there are no figures to prove it, it's a safe bet that most of that pipe was laid by Northwests.

Northwest Crawlers stand up in long mileages. Northwest Simplicity of Design makes upkeep low. Northwest equipment has proved its ability to deliver high output — and back of this is the fact that one out of every three Northwests sold is a repeat order in the hands of a responsible contractor — people like Lock Joint Pipe Company. There is no better testimonial.

Make your plans to have a Northwest now. Ask for complete details. Especially check into the Northwest Truck Crane and get the whole story on Crane and Carrier.

NORTHWEST ENGINEERING CO.
1502 Field Bldg.
135 South LaSalle Street
Chicago 3, Illinois

MAKE YOUR KEY MACHINE A REAL ROCK SHOVEL PROFIT

NORTHWEST

CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

FASTER, LOWER-COST DRILLING!

JOY Lightweight WAGON DRILLS

THE EXCLUSIVE "DRILL AND BLOW" FEATURE MEANS YOU BLOW THE HOLE AS YOU DRILL!

- ★ LIGHTWEIGHT only 750 lbs.
- ★ EASY ONE MAN HANDLING
- ★ FINGER-TIP CONTROL
- ★ POSITIVE LOCKING BRAKES

WRITE FOR BULLETIN, OR Consult a Joy Engineer

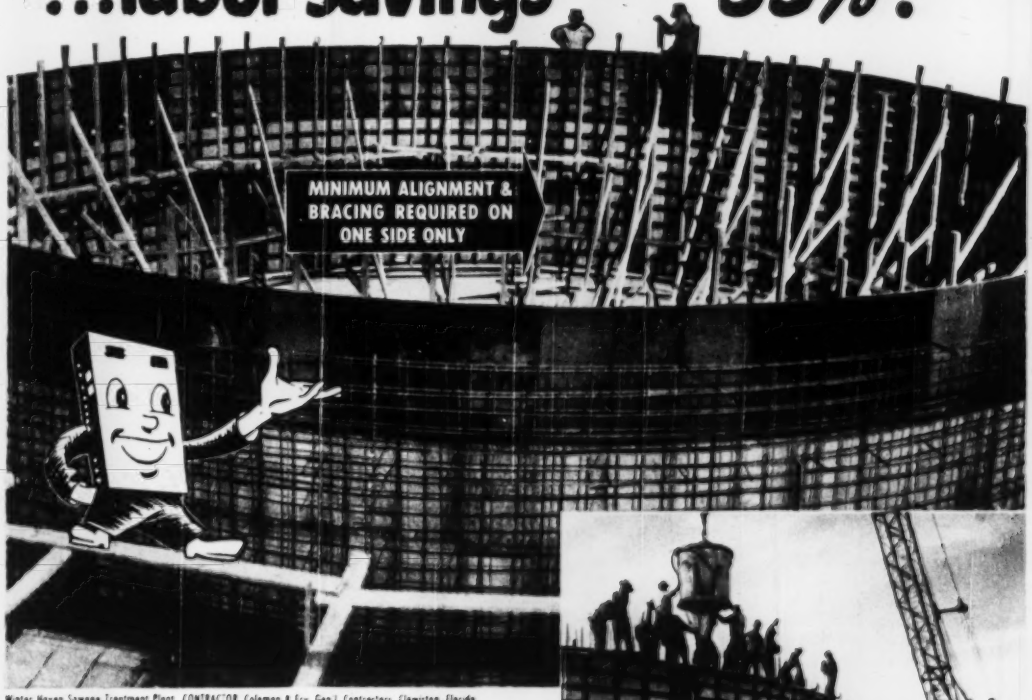
WAD C 2017

JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING · PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO

UNI-FORMS cut material costs ½ ...labor savings — 35%!



Winter Haven Sewage Treatment Plant CONTRACTOR Coleman & Fry Gen'l Contractors, Clewiston, Florida

Tucson Sewage Treatment Plant M. M. Sundt Construction Co., Tucson, Arizona

UNI-FORMS . . . the concrete form system . . . for *all* types of concrete forming . . . ready to go to work when they reach your job . . . *permanent* equipment . . . insure substantial material and labor savings . . . on large or small jobs . . . years of extra profitable service to you.

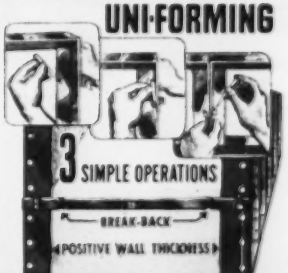
Send us a set of plans today. Let us show you the UNI-FORM way to extra profits.

HERE'S PROOF Illustrating Material and Labor Costs for forming 40,000 sq. feet of contact area in Circular Wall Construction.

	UNI-FORMS	CONVENTIONAL FORMS	SAVINGS with UNI-FORMS
Forms	3.2¢* per sq. ft.	8.0¢** per sq. ft.	5.99¢ per sq. ft.
Alignment and Bracing Lumber	.75¢ per sq. ft.	2.53¢ per sq. ft.	Total Material Saving $2396.00
Ties	1.68¢ per sq. ft.	1.09¢ per sq. ft.	8¢ per sq. ft.
Labor	15¢ per sq. ft.	23¢ per sq. ft.	Total Labor Saving $3200.00

*Based on 25 uses @ an approx. cost of $1.60 per sq. ft. with 50% salvage.
**Based on 5 uses @ an approx. cost of $ .50 per sq. ft. with 20% salvage.

RENTED...SOLD . OR RENTED WITH A PURCHASE OPTION



UNIVERSAL
Form Clamp Company
Founded 1912
1238 N. KOSTNER • CHICAGO 51, ILL.

SURE WAY TO REDUCE UPKEEP COSTS

Use TEXACO MARFAK

it prolongs the life of all chassis parts

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.

TEXACO

TEXACO

EVEN the roughest service won't pound or squeeze *Texaco Marfak* out of chassis bearings. This famous lubricant assures protection against wear and rust for extra hundreds of miles. *Texaco Marfak* saves parts replacements, keeps equipment on the job and out of the repair shop. And because *Texaco Marfak* is so long lasting, fewer applications are needed—another saving.

In wheel bearings, use *Texaco Marfak Heavy Duty*. It seals out dirt and moisture, seals itself in—assuring safer braking. Bearings last far longer because they get full protection. *Texaco Marfak Heavy Duty* requires no seasonal change.

Two more ways to reduce upkeep costs: (1) Lubricate heavy-duty gasoline and Diesel engines with *Texaco Ursa Oil X***—it keeps fuel consumption and maintenance costs low because it cleans as it lubricates. (2) Seal dirt and moisture out of crawler track mechanisms by lubricating with *Texaco Track Roll Lubricant*. It assures longer parts life.

A Texaco Lubrication Engineer will gladly help you simplify your lubrication setup and reduce your maintenance costs. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, New York.

More than 350 million pounds of Marfak have been sold! ☆☆☆

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

STOP AND PREVENT RUST

with

RUST-OLEUM

Rust can be stopped . . . stopped easily, surely, economically! RUST-OLEUM is the answer. For 25 years it has proved its capacity to stop and prevent rust at sea, in fume-choked industrial areas, on railroad rolling stock, bridges and signaling equipment.

RUST-OLEUM . . . an exclusive formula . . . protects metal with a tough, long-lasting pliable film that dries to a hard, firm finish that defies rain, snow, salt air, fumes and weathering. It adds years of extra use to metal roofs, tanks, sash, fences, stacks, gutters, downspouts, machinery and other metal surfaces.

RUST-OLEUM decorates as well as protects. It is available in all colors, aluminum and white. It can be applied to metal where rust has already started. You don't have to remove all the rust.

RUST-OLEUM is stocked and sold by Industrial Distributors in most principal cities. See our complete catalog in Sweets, or write for full information.

RUST-OLEUM CORPORATION

2531 Oakton Street • Evanston, Illinois

NEWS BRIEFS

$500 Million Argument—The Senate lost little time passing its version ($5.6 billion) of the Omnibus Flood Control-Rivers and Harbors authorization bill last week (ENR April 20, p 23). A conference committee will settle the $500 million discrepancy between House and Senate versions.

Are You Listenin', Johnson?—Adm. Louis Denfeld, former Chief of Naval Operations, says he'll accept appointment as director of the Port of Boston provided he's assured that he'll have no political interference whatsoever.

Inflation's Everywhere — American Standards Association reports that, in 1949, it approved new and revised standards at about double the rate it achieved during the war years, when its activity was speeded. It ok'd more than five times as many standards last year as its annual average during its first 13 years of operation. There are 160 ASA standards in the civil engineering field.

Speed the Day—F. J. McGrew, Jr., chairman of New York's statewide building code committee, told a public hearing that construction costs of one- and two-family dwellings may be reduced as much as 10 percent under the impending code. The savings, he said, could flow from the "elimination of obsolete provisions and restrictive practices in many of our codes, which are up to 30 or 40 years old."

Wanna Build a Toll Road?—Pennsylvania's Turnpike Commission took time off from building its eastern and western extensions recently to find a German-speaking employee, transport him to Berlin, Pa., and have him record a comparison of the turnpike and Germany's Autobahn. The recording, which emphasizes the difference between the turnpike, built with free labor, and the Autobahn, built with forced labor, will be broadcast by the Voice of America. That chore complete, the commission began coping with a local fracas on its western extension. It had named a new interchange the "Oakmont" interchange, for a nearby Pittsburgh suburb, even though it's in Harmar Township, three miles away. Already, petitions have reached the governor demanding that it be named the "Harmarville" Interchange. And all the commission set out to do was build roads.

Never Underestimate, etc.—Boston

(Continued on page 13)

Dig and dump . . . speed the cycle . . . take those shocks . . . *stay on the job*—that's the big order you give a hoist rope. To have it filled, put *Preformed* Yellow Strand Hoist Rope on your power shovel. Specify Lang Lay with Independent Wire Rope Core—6 x 19 for ropes up to and including 1″ in diameter, 6 x 41 for sizes 1⅛″ and larger.

In *Preformed* Yellow Strand, whatever the construction, internal stresses have been relaxed. You gain with longer rope life, fewer shutdowns for replacement, more production for your rope dollar. Call your B & B distributor now so you'll have a real *working* rope on hand when it's time to change your hoist, drag, scraper or other heavy-duty line.

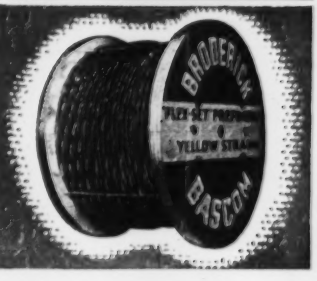
Broderick & Bascom Rope Co., St. Louis 15, Mo.

Branches: New York, Chicago, Houston, Los Angeles, San Francisco, Portland, Seattle *Factories:* St. Louis, Peoria, Houston, Seattle

BRODERICK & BASCOM

Yellow Strand

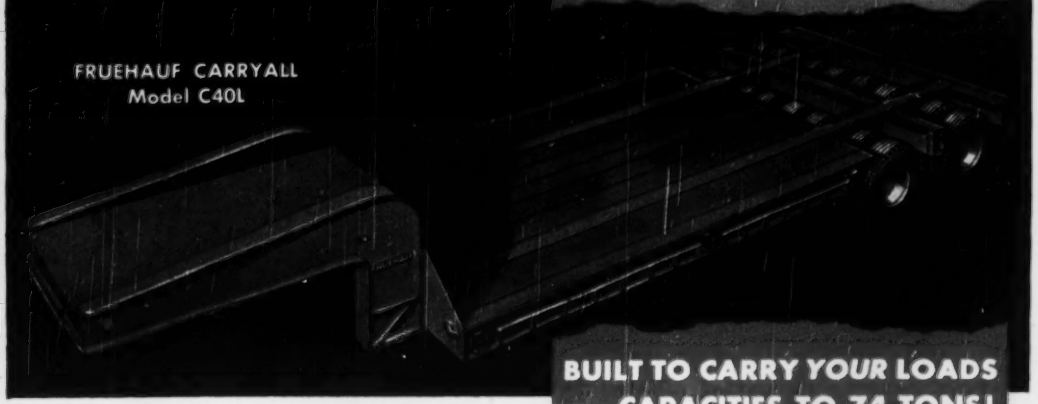
PREFORMED WIRE ROPE



THE *FIRST* CARRYALL WAS A FRUEHAUF CARRYALL!

. . AND THEY'RE STILL THE BEST

FRUEHAUF CARRYALL
Model C40L



BUILT TO CARRY *YOUR* LOADS . . . CAPACITIES TO 74 TONS!

YES, the first Carryall was a Fruehauf, built to specifications for a particular hauling job. Today, there are *seventeen standard* models and a host of "specials", designed to fit the requirements of most heavy-equipment users.

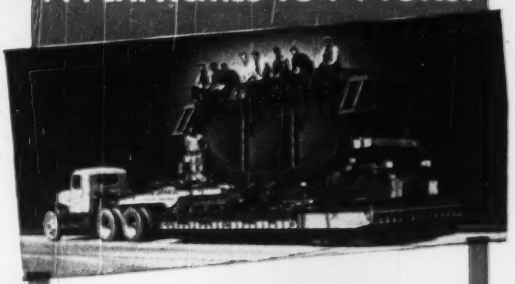
Ever mindful of the changing needs in heavy equipment hauling, and always keeping ahead in Trailer engineering and design, Fruehauf is ready to supply you with a modern Carryall to fit your particular hauling job — with either a "standard" or a "special".

For complete information, blueprints or specifications on the Fruehauf Carryall for *your* job, write —

World's Largest Builders of Truck Trailers

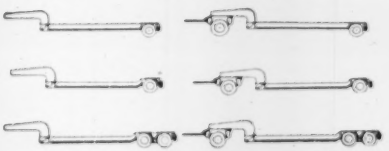
FRUEHAUF TRAILER COMPANY

DETROIT 32 • LOS ANGELES 58
IN CANADA: WESTON, ONTARIO



Fruehauf Carryalls are available in capacities from 10 to 74 tons in the standard models . . . to 150 tons in "specials". Frame designs as single- or double-drop "Semi" or full Trailers. No matter what your hauling problem may be, there's a Fruehauf Carryall to fit your job.

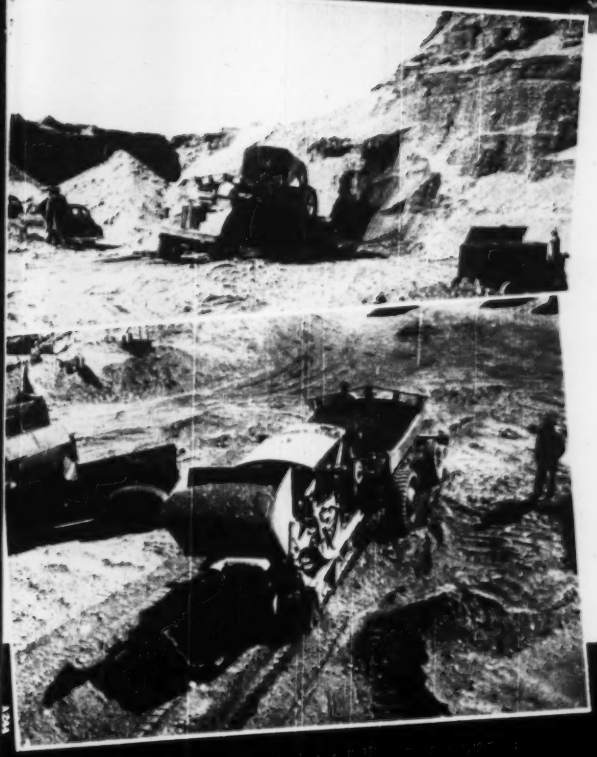
DESIGNED TO *YOUR* SPECIFICATIONS



FRUEHAUF *Trailers*
"ENGINEERED TRANSPORTATION"

WORLD'S LARGEST BUILDERS OF TRUCK-TRAILERS

EIMCO RockerShovel 104



Eimco 104 RockerShovel loading sand and gravel (weight: 125 lbs. per cu. ft.) at the rate of 8 yards per minute.

"A crawler-mounted RockerShovel for rock." This is the cry we've heard from RockerShovel users for many years—and now, after years of field testing, we have the machine our friends have asked for.

The 104 Eimco RockerShovel is the same rugged type of machine that has been the preferred loading equipment underground for many years—the same overhead principle pioneered by Eimco—the same heavy-duty construction throughout.

The Eimco 104 RockerShovel is designed for loading heavy, abrasive rock or sand and gravel using a 1¼ yard bucket for heavy rock, and a 2 yard bucket for sand and gravel. The 104 is available with a 48 H.P. Diesel engine, or 30 H.P. Electric motor.

This machine is ideal for loading, bulldozing, or cleaning in roadwork, quarries, stock piles, and mines. Operators are finding new uses for it every day.

Write for more information.

EIMCO

THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Rock Loading Machines

EXECUTIVE OFFICES AND FACTORIES — SALT LAKE CITY 8 UTAH U S A

BRANCH SALES AND SERVICE OFFICES

NEW YORK 51-52 SOUTH STREET • CHICAGO 3319 SOUTH WALLACE STREET
BIRMINGHAM ALA 3340 PAYETTE AVE • DULUTH MINN 326 E SUPERIOR ST
EL PASO TEXAS MILLS BUILDING • BERKELEY CALIFORNIA P O BOX 340
KELLOGG IDAHO 315 MAPLE STREET

AFFILIATED COMPANIES SOCIETE EIMCO PARIS FRANCE
EIMCO | GREAT BRITAIN LTD LEEDS 12 ENGLAND
AGENTS IN ALL PRINCIPAL CITIES THROUGHOUT THE WORLD

The World's Largest Manufacturers of Underground Rock Loading Machines

100 PARK AVENUE

New York's new, ultra-modern skyscraper is equipped throughout with

JENKINS VALVES

KAHN & JACOBS
Architects

GEORGE A. FULLER CO.
General Contractor

JAROS, BAUM & BOLLES
Mechanical Engineers

KERBY-SAUNDERS, INC.
Heating, Ventilating and Air Conditioning Contractors

JARCHO BROS.
Plumbing Contractor

JENKINS VALVES

LOOK FOR THE DIAMOND MARK

1715 JENKINS VALVES! At 100 Park Avenue, as in all large buildings and plants, the many valves required represent a major investment. Obviously, maintenance costs would become excessive if valves proved inferior. That is why, today, when low cost operation is a controlling factor in construction and modernization plans, so many builders take the long view of valve economy. They choose Jenkins Valves, for proved endurance. Despite their extra value, you pay no more for Jenkins Valves. *Sold through leading Industrial Distributors everywhere.* Jenkins Bros., 80 White Street, New York 13; Jenkins Bros. Ltd., Montreal.

(Continued from page 5)

women don't like the "park and shop" developments that have been springing up there. They're complaining that they have to walk too far from parking spaces to the shops, that high heels and soft ground don't mix easily, particularly when they face hours of sauntering up and down store aisles.

Double-Purpose Steam—A 50-man Canadian construction crew worked in shirtsleeves through one of Saskatchewan's coldest winters building a concrete dam at Cowan Lake, 100 mi northwest of Prince Albert. The men worked inside a wooden-framed, canvas-covered, insulated building which was steam-heated to keep the concrete from freezing in the 64-below cold. Begun last September to replace a wooden dam which burned, the job was finished early this month.

THE COVER

Vinton W. Bacon, the 33-year-old sanitary engineer who is now executive director of California's new State Water Pollution Control Board, has taken on a big job: He's heading up something brand new in the concept of pollution control.

The new angle is contained in the legislation (ENR July 21, 1949, p29) creating the 13-member board: It provides that the four state-official members (director of natural resources, director of public health, state engineer and director of agriculture) and the nine other members must represent both water users and potential water polluters. The state is divided into nine regions—each corresponding to a separate watershed, each represented on the state board and each administered by a regional board to act as a local enforcement agency (by means of injunction). The state board will coordinate activities of other agencies, through its power to require any state or local agency to "inspect and report on . . . factors involved in water pollution."

Son of a South Dakota veterinarian, Bacon moved with his family to California in 1933, graduated in sanitary engineering from the University of California in 1940. He was a design engineer for Los Angeles County sanitation districts, spent three wartime years in the U. S. Public Health Service (he wound up with the rank of captain), worked two postwar years with the Orange County sanitation districts, and finally became head of a sanitary engineering research program at the University of California, before taking his present post.

He's now engaged, among other things, in looking for a new home in Sacramento—which will be the third new home within a year for his wife and their two children.

NEW FREE BOOK

shows how

creosoted timber piles save money ...assure permanent foundations

Here's a book every engineer should have. It's filled with interesting facts. Graphic descriptions. Photographs of modern construction projects, large and small, that are founded on pressure-creosoted piles.

An interesting book, yes—but informative, too. Case histories tell how substantial savings have been effected and unusual construction problems have been solved by founding permanent structures on creosoted timber piles.

You'll find this book a valuable reference. Send for a copy today. There's no obligation involved.

KOPPERS PRESSURE-TREATED WOOD

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

CHAMPION

WORKIN'EST

Here are some of the exclusive features that give the TD-24 its matchless work capacity:

1. 180-h.p. International diesel engine with gasoline-conversion starting and unmatched "lugability".

2. Synchromesh transmission for easy shift-on-the-go operation; plus eight speeds forward and eight reverse.

3. Planet Power drive, smooth and rugged, for instant speed change up or down one gear without declutching.

4. Planet Power steering to provide power on both tracks in gradual turns and permit feathered or pivot turns.

5. Separate reverse lever for quick change of direction of travel in any of the eight transmission speeds.

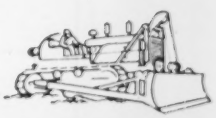
6. High-speed track assemblies with new recoil mechanism that holds front idlers in position against full-load track pull.

The NEW TD-24

CRAWLER TRACTORS • WHEEL TRACTORS

DIESEL ENGINES • POWER UNITS

Standardize on Power that Pays



# of Crawlers

TRACTOR ON ANY JOB

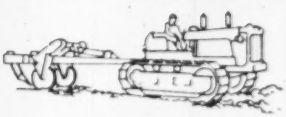
● *"THE TD-24 is definitely outhauling every other tractor on the job. It will do so much work that we are sure our job costs will show a great saving!"* That's the report of the foreman on the 247,000-yd. University of Maryland stadium project. • *"I don't have to stop on any grade,"* the operator reports, *"and we have 25% or better on this job. Why, I just go up in 4th gear easy while the other tractors have to switch to low to make it."* And the TD-24 hauls a 17-yard scraper, heaped! • Yes, the TD-24 is the "workin'est tractor" on any job. Yet, its operator is the worker with the easiest day! See your International Industrial Power Distributor. Get a TD-24 demonstration. Discover how you, too, can save job time, cut costs, earn extra profits.

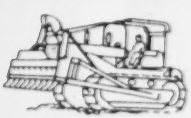
INTERNATIONAL HARVESTER COMPANY • Chicago

Tune in James Melton and "Harvest of Stars," —NBC. Sunday afternoons

INTERNATIONAL HARVESTER

INTERNATIONAL
INDUSTRIAL POWER





Ryerson Reinforcing Steels

Quickly from Stock

Yes—reinforcing bars and accessories, spirals, wire mesh, expanded metal—all the steels needed for reinforced concrete construction are shipped in a hurry when you call your nearby Ryerson plant.

And for your convenience, Ryerson service on reinforcing bars covers every step from estimate to dependably scheduled deliveries. Ryerson furnishes you with setting plans when needed; accurately cuts and fabricates your steel, using only bars that conform to ASTM specification A305-49; identifies every piece for easy placement, with metal tags that can't be torn or defaced. In every step, close cooperation between the men who engineer, schedule and fabricate your job assures faithful execution of all requirements.

Moreover, the completeness of Ryerson stocks adds another convenience to Ryerson service. Not only reinforcing steels, but structurals, plates, bars, sheets—everything in carbon, alloy and stainless steel awaits your order. So one source, your nearby Ryerson plant, can furnish everything needed for the biggest job. Still no job is too small to receive prompt personal attention. Call us for complete steel service.

Hi-Bond from Ryerson for Greatest Grip Meets and Exceeds New ASTM Spec. A305-49

With Hi-Bond reinforcing bars, designers can take full advantage of the higher compressive strengths of modern concretes and the higher tensile strength of new steels. Write for new bulletin describing Ryerson service on this unique reinforcing bar. Ryerson Steel, Box 8000-A, Chicago 80, Illinois.

RYERSON CERTIFIED STEELS

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO

THE CONSTRUCTION WEEK

HEALTH PLAN IN TROUBLE—New England's first health and welfare program for the construction industry isn't too pert at the moment—federal court judges have been called in to prescribe a cure. The plan was set up by building contractors and an operating engineers' union at Springfield, Mass., four months ago. It was supposed to work like this: Under the joint management of union and contractor representatives, a fund would be built up by contributions from the contractors of three percent of their payrolls; the fund would be used to provide hospitalization, surgical aid and insurance benefits for the 700 operating engineers in the area. But the union and contractor "managers" couldn't agree. Finally, the union man authorized a life insurance company (Union Label Life) to handle the coverage, without approval by the management man. The company began paying benefits—but when it presented its own bill for payment, the management manager refused to OK payment, claiming he hadn't approved the original agreement, so he couldn't rule on the bills.

PUMPS COME FIRST—Something out of the ordinary in large pumping station design is set up for Memphis' planned $3,500,000 Allen pumping station: On recommendation of consulting engineers (Black and Veatch, of Kansas City) the city light, gas and water commissioners have voted to buy the pumping machinery first, then design the building around it. Bids for equipment to handle the station's planned 30 mgd capacity will be called June 8. Engineers told commissioners that they'd save money by waiting to see size of the machinery, rather than designing a building (as has been past practice) high enough and wide enough to take biggest machinery that might be offered by a bidder.

INDUSTRY HELPS—Sign of increasing industry interest in stream-pollution control efforts is the formation of a 10-company committee of steelmakers (ENR March 16, p 25) to aid cleanup of Ohio River tributaries. Working with the Ohio River Valley Water Sanitation Commission, the steelmen will lend their research facilities, personnel and experience to suggest ways of controlling the pollution of the tributary Mahoning River, and to speed installation of waste-control methods in steel plants.

NEED COUNSEL FOR COUNSEL—Construction men need the services of an independent counsel to the National Labor Relations Board, to counsel them on matters that have no precedent. Such a counsel, said J. D. Marshall, AGC assistant managing director (to a Senate committee considering Reorganization Plan 12 that would abolish the counsel's office) can give broad explanations of the law's application to construction without committing NLRB to prejudge cases. The construction industry is having enough trouble applying and anticipating T-H requirements, Marshall indicated, without adding to the difficulty of getting interpretations.

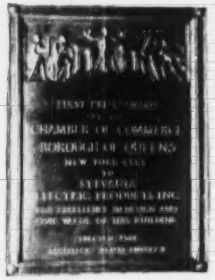
BAY BRIDGE OUT?—Something peculiar goes on about San Francisco's much-fought-over second Bay crossing. Although an engineering organization has been built up to handle the second crossing, newspapers that fought the favored parallel bridge announced the "apparent death" of the plan some days ago, and proponents admit that the project is indefinitely postponed. Trouble seems to stem from inability—despite months of bickering, hearings and action—to reconcile proponents of a southern crossing (ENR Feb. 13, 1947, p 3) approved by a joint Army-Navy board, and various other ideas including the Reber Plan (ENR Nov. 24, 1949, p 28) which would convert part of the bay into lakes. What happens to the California Toll Bridge Authority's special Bay Bridge Division and its staff is a question.

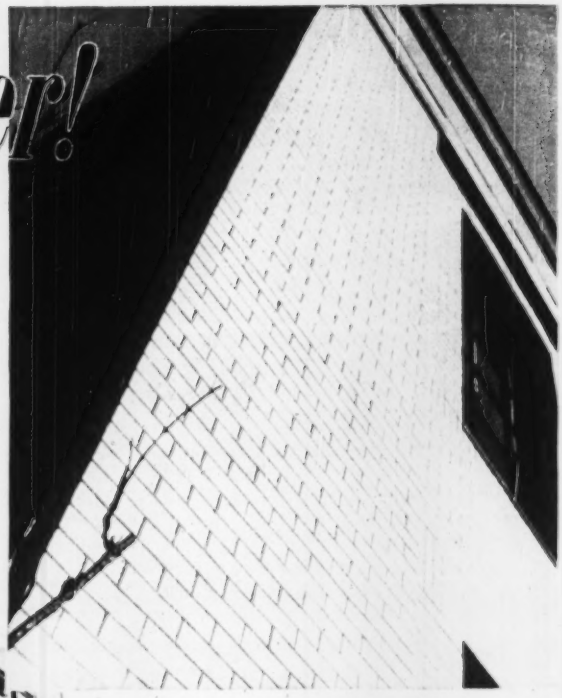
NOT DEAD YET—The issue of who (the U. S. Dept. of Interior or Virginia Electric and Power Co.) will build the works at Roanoke Rapids isn't dead yet. After an FPC examiner (ENR March 30, p 17) had decided that VEPCO should handle the development, Interior filed a motion to reopen the hearings. Said VEPCO, in an acid brief: "Reopening of the hearings can only erect a monument of futility against any further application by private capital to develop hydro power in the U. S."

ON THE DOUBLE—We don't offer this as the last word on labor productivity in the 1950 construction boom, but those who find output-per-man-hour deplorable ought to visit ENR's editorial shop and look down 23 floors to where workmen are concreting the roof of the New York Port Authority's new bus terminal. The concrete is brought up five floors from the mixer trucks by skip and deposited in a bin whence small hand carts are filled. The men who handle the hand carts form a continuous line—from the bin to the pouring site and back to the bin. And every time you look at it, the line is moving—often on the double.

Prize-Winner!

SYLVANIA ELECTRIC BUILDING MERITS TOP AWARD





SYLVANIA ELECTRIC PRODUCTS, INC.—PHYSICS LABORATORY
Bayside, L. I.
Architect: **AYMAR EMBURY 2nd**
Ready-Mix Lone Star Concrete: **COLONIAL SAND & STONE CO., INC.**
Lone Star Masonry Cement: **ACE BUILDERS SUPPLY CO., INC.**
General Contractor: **JOHN H. EISELE COMPANY, INC.**
—all of New York City

● Public appreciation of this Physics Laboratory of Sylvania Electric Products, Inc., in Bayside, L. I., was expressed by a Prize Award from the Chamber of Commerce of the Borough of Queens for excellence of design and construction.

Two stories and penthouse high, the building is non-industrial in appearance—it would look at home on any modern college campus. And the substance is as sound as the form is pleasing. For it is Lone Star throughout—Lone Star Portland Cement in foundations and structure...Lone Star Masonry Cement in attractive exterior walls and beautifully tiled interior.

The clean lines of the white-glazed-brick exterior are pleasantly punctuated by clean-cut joints, which speak of the artisan working with quality materials. And what doesn't meet the eye is equally important—for high-quality mortar like this means as much to the owner in low-maintenance service as it does to the mason whose work it expedites.

Lone Star Masonry Cement has won a premier position in the mortar field on the excellence of its performance.

Rich, buttery, extra-fat mortar... uniform texture, easy-spreading quality, sustained high yield... retains water, keeps brick or block from sucking water from the mortar ...remains plastic, beds units firmly, assures better bond.

Prize-winning attributes in mortar, which do their part in the sum total of prize-winning merit in attractive structures the country over.

LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

OFFICES: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON
CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS.
KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK
ST. LOUIS • PHILADELPHIA • WASHINGTON, D. C.

LONE STAR CEMENT WITH ITS SUBSIDIARIES IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS. 15 MODERN MILLS. 27,500,000 BARRELS ANNUAL CAPACITY

CONSTRUCTION TRENDS

HOW GOOD CAN BUSINESS GET?

This spring's boom on top of a boom in construction makes one thing worth watching by the industry:

The sudden and unexpected surge in work being started makes it appear that by June manpower and materials could be setting the limits on the amount of construction that can be done.

Apparently, most types of construction will feel the punch—but the tightest squeeze will come in home-building. The greatest material shortages are likely to be among the products that go into new homes.

Almost certainly, there will be no important shortage of construction machinery, from power plants through to the heaviest types.

A survey conducted by ENR last week (see news pages this issue) showed that manufacturers, dealers and contractors generally saw no prospect of any great interruption in the flow of units in response to orders—although the possibility of a great flurry of orders within a short period of time might slow down the delivery schedule somewhat.

Only items that showed up in the survey as being slightly over the normal delivery schedule were such machines as self-propelled scrapers and some larger size shovels—and these items are obviously of not too great concern to the home builder.

In March, homebuilders started 110,000 units—the all-time record month—in what is normally only the start of the construction season. For the first three months as a whole, homebuilders have started around 300,000 permanent non-farm units.

That rate almost certainly will taper off. But the indications are that, for 1950 as a whole, homebuilders will set a new record. And a much bigger share of that work will be engineering construction than was last year.

Here's the outlook as it adds up now: With the backlog of work cleared before the law expired, and $500 million of additional authorizations granted by Congress, starts under Section 608 will run about 150,000 units this year as against 110,000 last year. Other private multi-family building is expected to rise from 50,000 last year to 80,000. Military construction, for which the way is being cleared through changes in the law, is expected to account for 20,000 units this year where there were none in 1949.

Multi-family units under the federal and state public housing laws, although they are slow in getting started, may run to 70,000 units—as against about 35,000 last year.

As this adds up, prospects are for about 320,000 starts on large-scale rental units this year—as against slightly more than 200,000 last year.

With that much large-scale housing, private building of single family homes might drop 100,000 units—and the industry would still top last year's figures. But—as it is shaping up now—private single family building will be close to last year, if it doesn't top the 1949 figure.

The Federal Reserve Board's annual survey of consumer finances—which has become a basic benchmark in marketing—shows that at least as many families plan to buy or build new homes this year as did last year. Demand for homes under $10,000 is stronger now than it was a year ago—and the industry is building more of them.

Behind the prospects for sustaining homebuilding at a high level are, of course, today's high level of employment and incomes. Also, the 1950 housing act on the whole is more liberal than its predecessors. Then too, the temporary suspension of Federal Housing Administration activities and Fanny Mae's purchases of mortgages will have the effect of spreading out demand through the year.

Meanwhile, contracts for other kinds of construction are holding at a very high level. ENR's contract awards for the first 15 weeks of this year ran 39% ahead of last year.

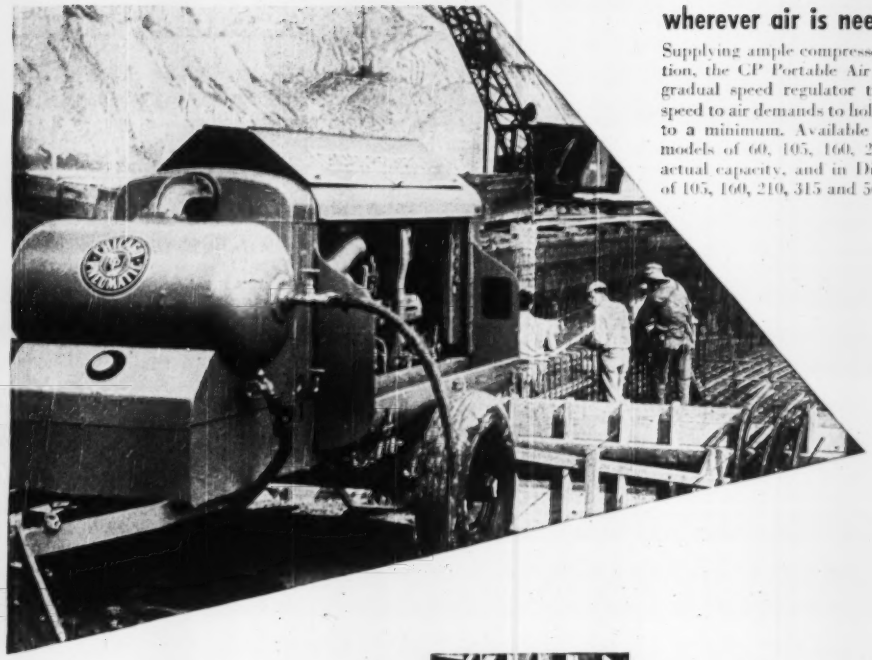
The surge in contracts and starts on homes that has marked the first three months will almost certainly taper off.

But clearly there's enough work underway to have the industry going at close to capacity now. And by mid-summer, when construction would normally hit its seasonal peak, the industry may really be stretched out.

As yet, except in lumber, there have been no marked price increases. Even lumber is still below its 1948 peak. But the volume of work that is ahead clearly will put pressure on prices. And there are likely to be shortages of some materials by mid-summer. Plywood is already short with mills unable to catch up on orders, reports show.

Labor, too, is likely to be short. Contractors are reported to be paying premium wages now. Bricklayers, for example, are getting premium rates for straight work in some areas—and there's an increasing volume of weekend work at overtime rates in many building trades.

In short—this summer materials and manpower once again are more likely to put the ceiling on the industry than is any shortage of work.



wherever air is needed

Supplying ample compressed air for any location, the CP Portable Air Compressor has a gradual speed regulator that adapts engine speed to air demands to hold fuel consumption to a minimum. Available in gasoline-driven models of 60, 105, 160, 210 and 315 c.f.m. actual capacity, and in Diesel-driven models of 105, 160, 210, 315 and 500 c.f.m.

protect your profits with CP time-cutting equipment

for fast cuts in hard wood

Helical gearing, high blade speed and a powerful motor give the rugged CP Hi-Speed Electric Saws plenty of reserve power. Available in three sizes: 7½", 8¼" and 9½" blades. Special blades can be furnished for cutting nonferrous metal, ceramic or concrete products.

for every demolition job

In the world's largest line of demolition equipment, there is a CP tool exactly suited for every type of demolition work. Five sizes include the light CP-111 (25 lb. class), the general utility CP-117 (60 lb. class), and the heavy-hitting CP-117 (80 lb. class) illustrated, for which no job is too tough!

air tools for construction jobs

The wide range of CP air-powered drills, wrenches and other construction equipment enables the contractor to secure just the right CP tool for any particular job. CP Corner Drills speed erection work; heavy-duty CP-365 Wrench easily runs nuts up to 1¼" bolt size.

CHICAGO PNEUMATIC TOOL COMPANY

General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

Beyond the Science

LEADING EDUCATORS and practitioners have put forward a sound philosophy to guide basic training for sanitary engineers—centering about a longer training period (ENR Feb. 23, 1950, p 112). These far-sighted recommendations—when carried out in college courses—will insure that tomorrow's sanitary engineers will go into practice well-equipped to handle the increasingly complex problems of modern civilization. Such preparation lays the technical foundations that such engineers need to dig into untilled fields and come up with fact-based decisions.

But sanitary engineers—or engineers in any of the other specialties—who are merely technical experts are not enough. They need the qualities that inspiring leaders and persuasive teachers usually have. These capabilities—which are not acquired in the classroom—are developed only by rubbing elbows with all types of men, by close observation of human motivations and reactions, by constant study of the caliber of leadership that gets the best, quickest, frictionless results, and by making good use of applied psychology. There can be no doubt that productive human engineering is as important as scientific excellence. Young engineers—in their headlong but commendable pursuit of scientific knowledge—will do well to consider this fact. Real policy making influence will come when truly competent engineers go beyond their science and exercise effective leadership in enterprises in which they are now merely cogs.

Truck Damage to Roads

MORE LIGHT is cast on the controversial subject of truck damage to highway pavements by a report on "Axle-Load and Gross-Load Trends" in the February, 1950, issue of PUBLIC ROADS. While some overloading is reported, the most important finding about pavement life is the great increase since 1942 in the number of axle loads of 20,000 lb or more per 1,000 vehicles. By 1948 the number had risen to nine times that of the 1936-37 period. And during that time, trucks on the highways almost doubled.

Everyone familiar with highway problems knows that traffic density and vehicle weight are the greatest contributors to pavement destruction. Steady pounding does the damage, and rate of destruction rises as heavily loaded vehicles increase in number. The alarming thing about the report's statistics is that the total of heavy axle loads appears to be accelerating rapidly.

Complaints against truck operators have centered, generally, on overloading, chiefly because it is illegal and so gives highway departments something specific to act on. And operators have replied that only a small percent of the trucks on our highways are overloaded—not enough, numerically to do much damage.

Report figures on axle-load trends suggest that density of axle loads—close to or only slightly above the legal limits—is the real controlling factor in pavement destruction. Even if the damage is caused by density rather than occasional overload, truck operators are not relieved of responsibility for bearing more of the cost of replacing damaged highways. If highways—adequate under less traffic—fail as density of legal traffic rises, then truckers making greater use of highways should pay for pavements adequate for that more intensive use.

Make It Safe for Public Employees

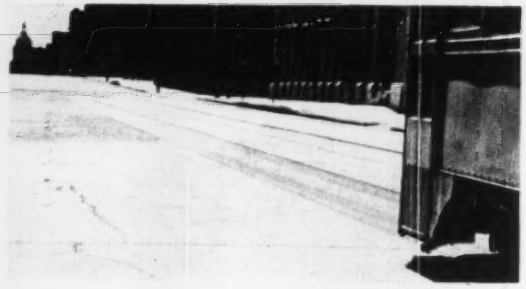
PUBLIC ADMINISTRATORS have a wide-open opportunity to cut employee compensation and medical costs as well as reduce human suffering. The accident rate for city workers is far too high. One study covering eight large cities with statistics collecting and safety programs shows that the average frequency of lost-time injuries per million man-hours of exposure is 30.7. This rate is three times that of comparable private industries. And it puts city employment as the fourth most hazardous occupation in a list of 40 major industries.

Much can be done to clear up this messy picture. By applying intensive safety programs, accidental deaths and personal injuries in industries have been cut down sharply: One meat packer reduced accident losses from $1.25 to $0.11 per $100 of payroll in five years; a refinery trimmed its losses $161,000 a year.

A few cities are effectively exploiting similar safety techniques. San Diego's public works department has driven down lost-time injuries from 82.3 to 21.5 per million man-hours of exposure in five years. The Minnesota department of highways compensation costs were $33,392 less in 1948 than in 1936.

To attack this problem, the National Safety Council—in a special pamphlet, "Public Employee Safety"—has spelled out a number of steps for making public work less hazardous. Briefly these are: The city's chief executive makes safety his responsibility and follows it through departmental application. He appoints an advisory committee for employee safety. Its job is policy making, employee training, record keeping, accident-report review and direction of technical assistants. Then he sets up a safety organization to carry out the objectives. And finally he delegates authority to make the safety program work—particularly at the lowest level.

City officials should study these recommendations with care. And then they can well afford to look closely at their public works operations. Their findings will be a strong incentive to make it safer for public employees.



Ten Years Ago...

A Decade of ATLAS DURAPLASTIC AIR-ENTRAINING PORTLAND CEMENT

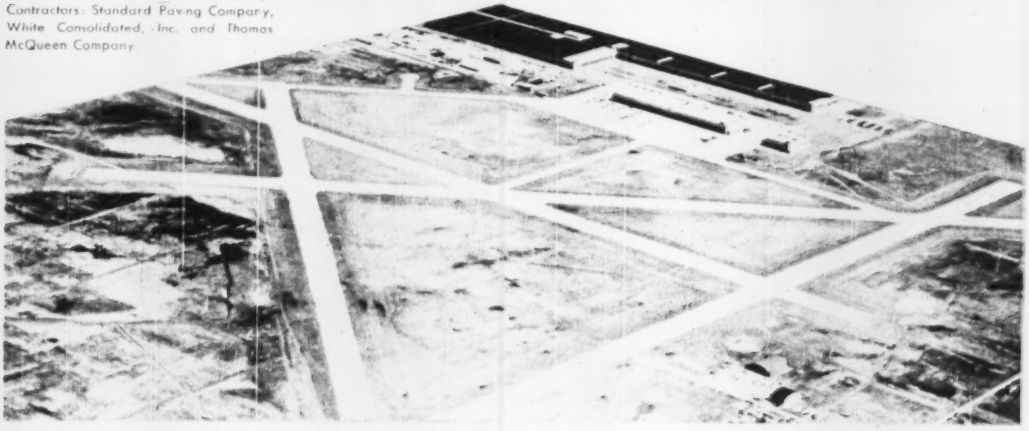
in August, 1939, this concrete test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, *laid at the same time*, was made with Atlas Duraplastic — the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of ten Minneapolis winters and to heavy applications of de-icing salts, are shown just as they appeared in July, 1949—convincing proof of the characteristic durability of Duraplastic concrete, of its high resistance to freezing-thawing weather and the scaling action of de-icing salts. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.

For example: O'Hare Field (formerly Douglas Airport), Park Ridge, Ill. Duraplastic used exclusively. Placed 1942-43. Despite heavy traffic of war and peace ...and the rigors of seven tough winters... paving remains durable and highly scale-resistant. Designed and supervised by U. S. Engineers and the Austin Company; Contractors: Standard Paving Company, White Consolidated, Inc. and Thomas McQueen Company.

Today

concrete paving of all kinds prove **DURAPLASTIC*** makes better, more durable concrete at no extra cost



Veteran airport or famous highway, country road or city street, simple sidewalk or service alley... millions of square yards of concrete paving of all kinds... have been proving, since 1939, that Atlas Duraplastic air-entraining cement makes better concrete, more durable concrete, at no extra cost.

Better concrete because Duraplastic requires less mixing water for a given slump; makes concrete more workable, more plastic, more uniform. The more plastic mix dumps, spreads, screeds and finishes easily; permits finishing closer to the paver, allows earlier protection for curing.

More durable concrete because Duraplastic minimizes segregation and bleeding; fortifies concrete against freezing and thawing; renders concrete highly resistant to the scaling action of de-icing salts.

At no extra cost because Duraplastic sells at the same price as regular cement; calls for no additional materials, no unusual changes in procedure. Duraplastic provides the proper amount of entrained air by *intergrinding with the cement* the precise amount of air-entraining agent needed for satisfactory field performance. It complies with ASTM and Federal Specifications. *Send for NEW FREE BOOKLET, "A Decade of Atlas Duraplastic Air-Entraining Portland Cement." Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.*

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

ATLAS DURAPLASTIC

TRADE MARK REG. U. A. C. CO.

AIR-ENTRAINING PORTLAND CEMENT

MAKES BETTER CONCRETE AT NO EXTRA COST

"THE THEATRE GUILD ON THE AIR" — Sponsored by U. S. Steel Subsidiaries — Sunday Evenings — NBC Network

ENGINEERING NEWS-RECORD

APRIL 27, 1950 VOL. 144 NO. 17

Survey shows no shortage of construction machinery

ENR queries manufacturers, distributors and contractors —Replies uniformly favorable on availability of equipment despite accelerating business boom

Despite the rapidly accelerating boom in construction business throughout the country, there is not and will be no major shortage of construction machinery as indicated by an ENGINEERING NEWS-RECORD survey conducted last week.

That—coupled with the fact that business is very good indeed—was the clearest fact emerging from a spot check of 22 principal machinery manufacturers, plus contractors and distributors.

And business is very good. One company reported it was doubling its production capacity to keep up with the demand. Almost all others reported they were increasing production.

• **What's available**—The survey took up more than 50 individual construction machinery items that contractors might need, ranging from small power units to cranes, shovels and huge earthmoving units including scrapers and trucks.

The scrapers—both hauling and self-propelled—seemed to be hardest to get. Delivery schedules reported ranged from six to 24 weeks. However, one company said tractor-drawn scrapers could be delivered in 2 weeks. All other items are available more quickly from time of placing the order—although there is some variation between individual manufacturers' schedules.

Important items, with their availability (according to the manufacturers) come out this way, in terms of weeks:

Tractors (all types), 3 to 10 weeks; tractor-dozers, immediate to 4 weeks; shovels (up to 1¼ yd), 1 to 8 weeks; pavers, immediate to 8 weeks; concrete finishers, 8 weeks; construction mixers, 3 to 8 weeks; truck mixers, 8 to 10 weeks; small pumps, immediate; motor graders, immediate to 4 weeks; rollers, immediate to 3 weeks; crushing plants, 4 weeks; power units, immediate; batching plants, 6 weeks; buckets (all types), immediate to 4 weeks; cranes, 3 to 6 weeks; conveyors, 5 weeks.

• **Not bad**—This situation, say distributors and contractors, is normal and in some cases even better than normal. Certainly it's very good in comparison to the immediate postwar years, when machinery of this kind was available only on a priority basis—and even then with delays that were often up to a year or more.

They pointed out that contractors normally can start jobs without a full complement of equipment, moving it in later as the site is opened up. Thus on new jobs, the contractor can usually make the leeway he may need on equipment delivery.

Secondly, of course, few contractors bid (or are permitted to bid) on contracts for which they are totally unprepared, machinery-wise. Hence the average bidder has still another means of finding the time to get what he needs before he must put the machinery to work.

• **Situation fluctuates**—Actually, of course, the equipment situation changes almost day to day as the construction season moves into full swing. Some manufacturers—conscious of a blossoming buyer reluctance a year ago—may have curtailed production to an extent for fear of growing inventories on their dealers' floors. Certainly, income statements for 1949 showed sharp drops and evidence of a buyers' strike by contractors.

But today, nobody seems concerned about that. Backing the optimistic reports of the manufacturers, most distributors said they have worked off their backlogs and are selling new stock. None seem concerned about procurement of replacements. Although all were conscious of a possible dislocation, it was stressed that the biggest push for equipment for this year is coming now and will continue for another two months. "If we can meet it now—and it seems that we can—we won't have any trouble this year," said one distributor queried by ENR. A majority of the remainder indicated their agreement.

SPEEDS SHORE TRAFFIC—This twin-leaf bascule bridge over Grassy Sound, Wildwood, N. J., is to be open before July 4, and will permit 80 percent of all boat traffic beneath it to pass without opening the bridge. It replaces a drawbridge which had been opened as often as 12,858 times in one year, each opening delaying traffic 10 minutes. It was designed by the Bridge Division of the New Jersey Highway Department, for which Howard, Needles, Tammen & Bergendoff were consultants.

Federal aid for local roads this year included in Chavez' highway measure

Senate Public Works Committee to open hearings next week on road-aid measure—Its terms seen designed to catch votes

Vincent B. Smith
Washington Staff

Hearings on the Senate highway bill, due to begin next week will present an interesting study in politics. The bill—introduced by Sen Dennis Chavez, chairman of the Public Works Committee—turned out, as expected, to be a catch-all measure designed to snare votes. It goes far beyond the counterpart measure soon to be considered by the House (ENR April 6, p. 23).

The Senate bill offers federal aid to every kind of traveled way from local farm roads to the Inter-American Highway. For existing federal-aid routes—including the interstate system—it proposes bigger annual authorizations than those approved by the House committee in the Whittington bill. It would authorize $550 million a year of traditional federal aid and $100 million of special assistance to the interstate roads—for fiscal years 1952 and 1953.

• **Provides local-road aid**—The real dynamite in the bill, however, is a proposal to authorize $150 million of federal aid for county roads. To make it more alluring, this county aid would become effective next July 1 and would run until June 30, 1952. Legal and physical difficulties would make it impossible to extend local road aid on this schedule even if it were enacted, but the enticement of quick benefits apparently overrode practical considerations.

In an election year, it will be hard for the Public Works Committee and for the Senate itself to turn down these allurements. Ordinarily, Sen John L. McClellan, chairman of the subcommittee which will conduct the hearings, could be counted upon to hold his group to a steady course. But this year, vote-getting bait may prove too tempting to resist.

If the Senate should vote to authorize federal money for use on local roads, the proposal would still have to top two additional hurdles before it would go to the President. The first test would come in the conference committee that would have to iron out differences between the bills passed by the two houses.

No money for local roads is included in the present House bill. Presumably the House will pass that bill pretty much as it stands. Under those circumstances, the House conferees could not even consider putting local road aid in the conference report that they would have to take back to their chamber.

Should a deadlock ensue, with the Senate holding out for local roads, the only alternative would be to have an amendment offered in the House. If the House approved such a local road amendment, the conferees then *could* work out an agreement on the item for acceptance by both branches.

This chain of events is not likely to occur. In the light of the difficulties, there is small chance that the farm bloc can force through this year any federal aid for local roads. But the portent is clear.

• **Has been tried before**—Various attempts have been made in Congress during the last dozen years to put the 2,000,000 miles of local rural roads under the federal-aid blanket that now covers 625,000 miles on the primary and secondary systems. Heretofore, these attempts have taken the form of separate bills or amendments to federal-aid legislation. The Chavez bill is believed to be the first general highway measure that has included a proposal to give federal money to farm-access roads carrying low volumes of traffic.

Under the Chavez proposal, the federal government's $150 million would pay 40 percent of the cost of new construction on these roads. It would be matched by state funds for 25 percent of the cost and by local funds for 35 percent. The federal contribution would be limited to $4,000 a mile, apparently making the maximum construction cost $10,000 per mile.

To be eligible for aid, the bill would require a county—or a number of counties not exceeding five in a group—to employ a qualified highway engineer or "technician." Design and construction standards would be set by the counties in consultation with their state highway departments, without any stipulated federal supervision. Construction contracts, however, would be awarded by open, competitive bidding, subject to the approval of the Bureau of Public Roads.

• **Keeps matching ratio**—For the interstate roads—40,000 miles of trunk-line routes included in the primary system—the Chavez bill ups the annual aid to $100 million but holds the matching ratio to 50-50. The Whittington bill proposes $70,000,000 and would allow this money to be used with primary system aid to increase the federal share on interstate projects in any proportion from 50 percent to 75 percent, at state option.

Both bills agree on this important new principle: States could issue bonds to speed construction of their interstate projects and use future federal interstate allotments to retire the bonds at maturity. This device is counted upon to reduce the pressure on the states to build toll roads with bond money, in order to catch up on their direst needs. The Chavez bill omits one safety clause contained in the Whittington measure: That Congress is under no obligation to continue special interstate allotments in future highway acts.

The Senate bill would apportion its $550 million of regular federal aid on the present 45-30-25 percent basis. In addition, it would authorize $50,000,000, with no time limit, for up to 100 percent federal expenditure on defense highways leading to military installations or industrial plants.

• **Alaska included**—Senator Chavez also proposes in his bill that Alaska shall share in federal-aid highway funds. As a corollary, it would transfer from Interior Department to the Bureau of Public Roads, effective next July 1, the functions and authority for construction and maintenance of roads, bridges, ferries and tramways in Alaska. Two years ago, Interior favored this change. Since that time, it has built up an Alaskan highway organization, and the department now is expected to oppose the transfer.

Six states join appeal for water pact rehearing

Legality of West Virginia's participation in the Ohio River Valley Water Sanitation Commission may be taken to the U. S. Supreme Court for determination if the West Virginia Supreme Court continues to deny it.

That was the agreement of attorneys generals of six member states after a meeting last week (ENR April 20, p. 27) which followed the state court's decision against permitting West Virginia funds to be paid ORVWSC. Attorney General H. S. Duffy, of Ohio, announced the plan.

Officials of the participating states will join in a request for a rehearing by the West Virginia Court. But Attorney General W. C. Marland, of West Virginia, reminded them of the state court's rule against rehearing any case in which the supreme court has original jurisdiction. Even so, he indicated, it would be proper for officials of other states to file briefs. Plans for a federal appeal will follow if rehearing is denied.

Action on floodway pledged by engineers

Board of Engineers for Rivers and Harbors to act on Mahoning-Grand River Floodway plea at next meeting

After a three-day hearing in Washington, the Board of Engineers for Rivers and Harbors promised last week to act at its next meeting on the proposed Mahoning-Grand River Floodway project located in the northeastern part of Ohio.

Brig. Gen. John S. Bragdon, chairman, said the next meeting probably will be in June. In the meantime, he said, the district engineer would be asked to submit additional data in support of his recommendation that the project be built.

Bragdon said it would take several weeks to review the testimony before a recommendation can be submitted to the Chief of Engineers for transmission to Congress.

• **Vital for defense**—One of the many proponents who appeared at the hearings—Rep. Michael J. Kirwan, Ohio Democrat—told the board that the water control project is "vitally necessary to national defense." The scheme would cost about $54,000,000, one-third of which would be borne by local sponsors. The project would curb floods and maintain an adequate flow of water in both the Mahoning and Grand Rivers. It has been approved by the Army division engineer.

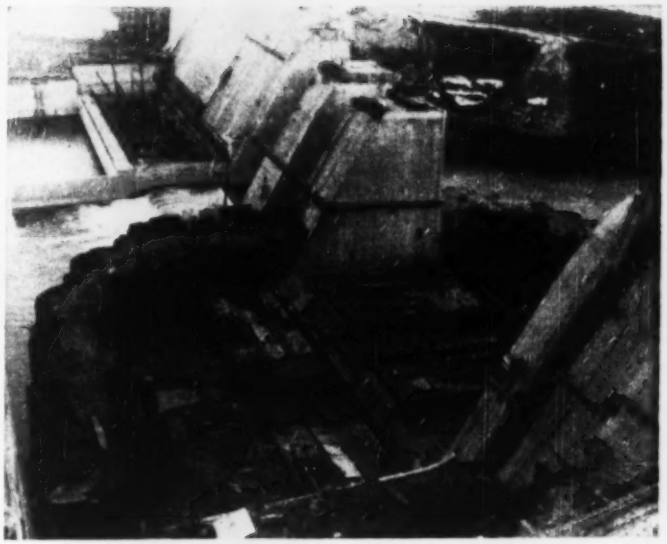
K. M. Lloyd, representing the Ohio River Valley Improvement Association, said lack of water in the industrial centers of Warren and Youngstown "is causing a serious pollution problem."

Mayor Charles P. Henderson, of Youngstown, pointed out that "the area produces 10 percent of the nation's steel, and the whole economy of that region is dependent on a stable water supply."

Opponents of the project contended that it is "part of a piece-meal plan to connect the Ohio River and Lake Erie with a navigable canal."

• **Opposition arises**—Representing the Upper Ohio Valley Association, of Pittsburgh, a former Army general, R. G. Breene, Dayton, Ohio, testified that the Army Engineers drifted far afield from Congressional direction in their report. The witness claimed that the project was "merely a scheme to secure an adequate water supply for the Youngstown-Warren area" and that federal taxpayers were being asked to foot a bill which "is local in character to the extent of at least 90 percent of the benefits."

He also attacked the Army Engineers' use of a "conceivable flood" in estimating benefits.



Creek Dam on Cumberland River, Kentucky. 1,400,000 cu yds of concrete will be used in the spillway powerhouse section and adjacent non-overflow sections. Work is being done under the supervision of the Nashville, Tenn., district Corps of Engineers by Jones-Wright Company, Charlotte, North Carolina. (Corps of Engineers Photo.)

USDC publishes standard bridge study

A study released last week by the Office of Technical Services, Commerce Department, describes a standardized bridge design for temporary or permanent construction in these lengths: Beam spans of 20 and 24 ft, pony truss spans of 40 to 200 ft, and—as a stiffened suspension bridge—clear spans of 160 to 640 ft.

Carried out by the Corps of Engineers, the study undertook to arrive at a variable-span design for military use that would make possible stocking of standard parts for the building of beam spans, pony truss spans, piers, towers and pile bents.

The recommended design is a simple, clean-cut structure, with sufficient strength to carry 50-ton tanks and railway loadings not exceeding Cooper's E-20. With the addition of special parts to anchor the cables to the trusses, the suspension bridge may be built as a self-anchored design.

The suspension bridge includes suspension members of prestressed galvanized strands—to be stocked in as few sizes as possible—one end of each strand to be socketed in the shop, leaving the other end for field placement. A laminated wood floor is proposed.

Unstiffened suspension bridges were rejected for the purpose of the variable-span design because the passage of traffic would be impeded by the disconcerting effect of excessive transverse rotation and vertical deflection. "Cable-stiffened" suspension bridges failed to meet the requirements of the desired design for efficiency and economy of construction.

Titled PB 99471, Variable Span Suspension Bridge, Preliminary Study, the 106-page report, including drawings, graphs and tables, is available at $13.75 in photostat, $4.50 in microfilm. Orders should be addressed to the Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C., accompanied by check or money order payable to the Librarian of Congress.

Dispute road consultants

Ohio's Highway Director T. J. Kiner and State Auditor Joseph T. Ferguson are disputing whether the highway department legally may hire outside engineering help. Ferguson has withheld approval of contracts calling for $445,000 in engineering fees to non-departmental personnel. Kiner asserted the attorney general had approved such contracts and that the department is short of engineering help.

Army names three division engineers

Maj. Gen. Lewis A. Pick, Army Chief of Engineers, announced appointment of three new division engineers last week to fill vacancies in the corps' decentralized field organization.

Col. F. F. Frech, now assigned to the First Army, at New York City, and former district engineer at Philadelphia, will become division engineer, North Atlantic Division, New York, about June 10.

Col. Arthur W. Pence on June 1 will become division engineer of the Ohio River Division, at Cincinnati, Ohio. He now is district engineer at Nashville, Tenn.

Col. John S. Seybold, now assigned to the Omaha, Neb., Missouri River Division office, and former district engineer of the Garrison District, at Bismarck, N. D., will become division engineer of the South Pacific Division, at Oakland, Calif., about May 8.

The North Atlantic Division, embracing an area of approximately 125,000 square miles, includes all of two states, New Jersey and Delaware, and parts of nine other states: Vermont, Massachusetts, Connecticut, New York, Pennsylvania, Maryland, West Virginia, Virginia and North Carolina. There are five districts under the division: New York, Philadelphia, Baltimore, Washington and Norfolk.

The Ohio River Division embraces an area of approximately 206,000 square miles and includes parts of 14 states: Illinois, Indiana, Kentucky, Ohio, Pennsylvania, New York, Maryland, West Virginia, Virginia, North Carolina, Tennessee, Mississippi, Alabama and Georgia. Under the division are four districts: Huntington, Louisville, Nashville and Pittsburgh.

The South Pacific Division is the largest in area of all the Army Engineer divisions. It embraces approximately 566,000 square miles and includes all of two states, California and Arizona, and parts of seven: Oregon, Idaho, Nevada, Utah, Wyoming, Colorado, and New Mexico. There are three districts under the division: Los Angeles, Sacramento and San Francisco.

3 Montana road officials resign; charges withdrawn

Attrition in Montana's Highway Department reached its peak last week when three members of the commission resigned, effective May 1, after an ouster hearing at which Gov. John W. Bonner withdrew charges he had filed against them.

The resignations were the latest action in a series of convulsions which in two months have brought the resignation of Highway Engineer C. H. Stahl, (ENR March 9, p 21); abolishment of two engineering jobs, and the dismissal of Commission Secretary W. O. Whipps and attorney Myles F. Thomas.

Bonner demanded the resignations of Commissioners Lee Ford, chairman; H. H. Kincaid and A. W. Heidel. In doing so, he charged that they permitted the ordering of materials without obtaining bids; that they refused to cooperate with the governor; that they failed to adopt a specific road plan they should have adopted; and that they refused to cooperate in the ousting of Whipps.

In withdrawing the charges at the hearing, Bonner declared them innocent "of any unlawful irregularity in office, or of any willful wrongdoing." He added that they had not been responsible for the approval of the materials order without bids and that the materials had not been bought despite approval of the order.

IT'S GOT EVERYTHING.—The Mutual Life Insurance Co. of New York moves to this building at Broadway and 55th St., Man. I. With 421,000 sq ft of floor space, the structure was built by the Turner Construction Co. Shreve, Lamb and Harmon Associates were architects. The building will be air conditioned, will have automatic elevators and will be lighted entirely by fluorescent lamps. A public address system will be installed throughout, and radiant heating will be installed in pavements around the building. The building will be soundproofed throughout and will contain off-street truck loading facilities. Movable steel partitions will be used for interior walls.

British Columbia sets 7-year road program

$120 million expenditure planned—Location of Trans-Canada Highway route through province announced

A seven-year, $120-million highway construction program has been approved for British Columbia by the provincial legislature. And selection of the Trans-Canada Highway route through the province has been announced.

The Trans-Canada highway, under agreement with the Dominion government, will go from Banff, Alberta, via Kicking Horse Pass, Big Bend Highway, Revelstoke, Kamloops, Fraser Canyon, Vancouver and Nanaimo to Victoria, a ferry link joining Vancouver and the Vancouver Island section beginning at Nanaimo.

• **$29 million from Dominion**—The Dominion government will provide about $29,000,000 as its share of the highway; the provincial government has budgeted $24,000,000, with another $4,500,000 for land and fencing.

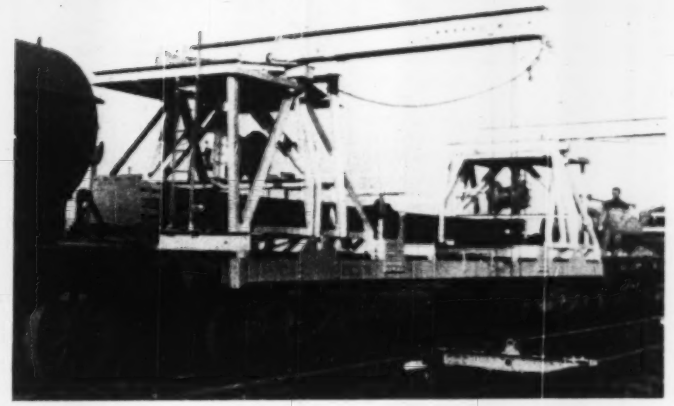
Borrowing a total of $86,000,000, to be repaid by 3 cents of the 10-cent provincial gasoline sales tax, was authorized by the legislature. Also, the government has available another $3,000,000 authorized by the House last year.

In addition to the Trans-Canada Highway, the funds will allow completion of the paving of the Southern Trans-Provincial Highway from Vancouver to Crow's Nest Pass, completion of paving of the Island Highway on Vancouver Island, completion of the Okanagan and Kamloops-Vernon highways, completion and paving of the Fraser Valley Highway on the north shore of the Fraser River, and improvement of feeder and secondary roads.

• **Numerous bridges planned**—For the coming year, the government has allocated $3,500,000 for paving 280 mi of highways; and $10,000,000 has been allocated for new construction on main projects. Construction of 22 bridges is planned this year, in addition to completing the $4,000,000 program undertaken by the government last year.

Public Works Minister E. C. Carson, in detailing the program, announced also that John Hart Highway, linking Prince George and Dawson Creek, is scheduled to be completed by 1951.

The public works department annual vote provides $8,917,650 for maintenance and repairs to roads, bridges, ferries and wharves, compared with $8,000,000 last year for maintenance of these facilities.



BRITISH LIKE IT—A track re-laying device for use on double track, developed by the Southern Region, British Railways, about two years ago, has proved so successful that three more have been added. Working on a parallel track, the machine first picks up an unbolted 60-ft section of old track, with ties still attached, moves ahead and puts the section on empty flat cars standing on the track from which the section has been lifted. Then it moves on to other cars on the same track which carry newly assembled 60-ft sections of new rail and ties, picks up one of these sections and carries it back to replace the lifted section. The lifting arms are pivoted so that they can be swung clear of the parallel track when not in use.

New USPHS survey reveals much untreated sewage reaching streams

Discharge from homes of 25 million people untreated—Only partial treatment for discharge from homes of as many more

Sewage wastes from the homes of 25,000,000 people discharge directly into public waterways without treatment, Assistant Surgeon General Mark D. Hollis said last week following a meeting at Washington of the National Water Pollution Control Advisory Board.

Wastes from homes occupied by another 25,000,000 people are only partially treated, Hollis said. These figures, he explained, are taken from a new supplement (213) to "Public Health Reports."

This supplemental document, "Statistical Summary of Sewage Works in the United States," he added, was prepared by John R. Thoman, sanitary engineer at the PHS Environmental Health Center, in Cincinnati. In it, Thoman has summarized basic data that first appeared in the 1945 inventory of water and sewage facilities, a PHS survey covering all communities of over 100 population in the United States. "There has been no significant change in the general situation since the survey," Hollis said.

• **Half have sewers**—According to the summary, some 40 percent of the 22,400 communities listed five years ago—8,917, to be exact—were equipped at that time with sewer systems. Those systems served about 54 percent of the total population of the country.

Three areas in the country surpass the national average of 62.7 percent for the sewer-connected population whose wastes are treated in sewage treatment plants, according to the supplement. Those areas are the east north central states (Ohio, Indiana, Illinois, Michigan and Wisconsin), the west south central states (Arkansas, Louisiana, Oklahoma and Texas), and the Pacific coast states (Washington, Oregon and California). Together, they hold slightly more than one-third of all the people whose homes are connected with sewers.

• **Many not connected**—In a few scattered states—Arizona, Illinois, Maryland, Nevada, New Mexico, Texas and Wisconsin—homes of 9 out of 10 persons are connected with systems which include sewage treatment. The proportion is nearly as high—4 out of 5 persons—in the east north central states. This group of states contains nearly 20 percent of the total population that is served by sewer systems.

Going back 90 years, the report shows that, in 1860, the home of only one person out of 30 was served by a sewer system; today the ratio is one out of two. By way of explanation, in 1860 there were only 10 communities with public sewerage systems. Today, there are nearly 9,000. But not all the people in these communities are served by the systems installed, the report declares. Continually since 1860, the number not served in sewered communities has ranged between 5,000,000 and 8,000,000.

In the 15 years from 1930 to 1945, more than 3,800 communities installed sewer systems, the report says. These installations increased the total number of systems by 75 percent, but there was not a corresponding increase in the number of persons served. This lag points to the need for additional sewer systems in the smaller communities, the summary concludes.

Between 1940 and 1945, 401 new installations brought sewer facilities to more than 4,000,000 people not previously served, the report asserts. By 1945, practically all communities of more than 10,000 population—and about 91 percent of those in the 5,000-10,000 group—had sewer systems. By contrast, less than 18 percent of the communities under 1,000 population are connected to sewer systems.

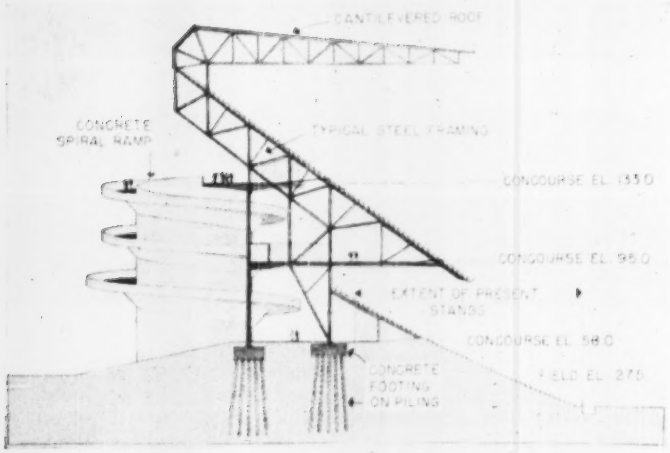
Information for the 1945 inventory was compiled with the help of the state health departments, the report makes clear.

Two gas, chemical plants to be built in Kentucky

Tennessee Gas Transmission Co. will build a $12,000,000 extraction and recovery plant at Greensburg, Ky., adjacent to its pipeline network.

It will be designed to process more than 600 million cu ft of natural gas daily, removing therefrom about 400,000 gal of liquid hydrocarbons daily. These will be sold to the newly organized Mathieson Hydrocarbon Chemical Corp. and transported through an 8-in. pipeline from the TGT plant to a new chemical plant Mathieson will build on the Ohio River near Brandenburg, Ky. This plant will cost $17,000,000 and is to be complete at the end of 1951. Mathieson also plans a $6,000,000 plant for the production of raw material components at an undisclosed location.

Construction of TGT's new extraction plant is to begin within two months. The plant is to be in operation by mid-1951. Facilities will cover a 10-acre site and will employ about 40 people, TGT announced.



BIGGEST WELDING JOB?—This second-deck addition to the University of Washington stadium, at Seattle, is described by university officials as the biggest welding job ever performed on a building structure. Sigmund Ivarsson was consulting engineer and George W. Stoddard architect. Its design will eliminate gusset plates and rivets, saving about 200 tons of steel. Weld stresses will be 33 percent in excess of those recommended by the American Welding Society. Ivarsson says the welding advantages include better appearance, greater strength, saving of several weeks of construction time and $40,000 in steel costs.

AISC meeting hears research reports

Research on high-strength bolts, developments in paint for structural steel, and advancements made in light-weight floor construction formed the nucleus of the second annual National Engineering Conference of the American Institute of Steel Construction, at Chicago April 12-13. Some highlights of the panel discussions and papers, include:

• **High tensile bolts**—Improved results will be obtained with the use of high tensile structural bolts, up to 120,000 psi tensile strength, as current research develops new rules for taking full advantage of their properties. They can be used with economy and with improved engineering performance, in a variety of structural work. Although conclusive reports are not yet available, four universities are extending their experimental work on high tensile bolts. The University of Illinois has statically tested bolted joints and made fatigue tests on a number of them. Northwestern University is investigating the effect of grip length of fasteners; the University of Washington (Seattle) is studying static slip resistance of bolted joints; and Purdue University has begun fundamental studies on the stress distribution in plates adjacent to the hole, due to high clamping forces of bolts.—W. C. Stewart, Technical Adviser, Industrial Fasteners Institute, Cleveland.

• **Railroad Bridges**—An estimated $160,000 can be saved each year by the railroad industry by using high-strength bolts in place of rivets in maintenance work on bridges alone, and a total of $440,000 could be saved yearly if bolting was used for all field connections. This is based on recent figures indicating that about 800,000 rivets are re-driven each year by railroad bridge maintenance crews in the United States, and 1,400,000 rivets are driven during the erection of new railroad structures.—E. J. Ruble, Structural Engineer, Association of American Railroads, Chicago.

• **Painting of Steel**—More research is needed by steel producers and paint manufacturers on paints and painting of structural steel from the standpoints of both economics and performance. In the preparation of steel for painting, there is considerable question as to whether the presence of some mill scale is as objectionable or harmful to paint performance as the presence of initial surface rust. When used as a shop coat primer, "Zinc Yellow (a greenish-yellow pigment composed of the double salt of zinc and potassium chromates) is superior as a rust inhibitive to any other pigment available, including red lead. For topcoat paints, the most durable pigmentation consists of aluminum, followed by carbon blacks, red oxides and then grays and greens, ground in alkyd or phenolic resins, spar varnish or linseed oils.—William J. Bradley, Pittsburgh Plate Glass Co., Springdale, Pa.

• **Lightweight construction**—Among the several materials and methods of lightweight construction now available, is one involving lightweight reinforced steel plate for flooring. Already laboratory-tested but as yet unused in a building floor, the system includes a ¼-in. steel plate, stiffened by zig-zag 2x¼-in. bars, and edges reinforced with 3-in. channels—all welded into a structural unit and fire-proofed with lightweight plaster below and fill material above. The assembly weighs 8 lb per sq ft. It has a ratio of dead load to live load of 0.8, and an efficiency rating (live load to total load) of 55%.—Mace H. Bell, engineer, AISC, St. Louis.

International water pact sought for power plant

United States and Canadian representatives are negotiating an agreement to permit the Aluminum Company of America to use lakes just across the Alaskan Border in British Columbia as a power source for an aluminum plant proposed for the Skagway area, in Alaska.

Alcoa has bought property near Skagway and its engineers have surveyed proposed routes for the water, carrying it 35 mi through the Alaskan coastal mountains to tidewater at the head of the Lynn canal. The power plant, which might be as large as the largest hydro plants in the United States, would involve a series of tunnels and dams. These lakes now empty into the Yukon River, which empties into the Bering Sea.

Alumina for the proposed plant would be shipped from the United States to take advantage of extremely low-cost power.

OK Los Angeles freeway

A hotly contested $6,500,000 freeway link to overpass freight yards and a major boulevard in the northern portion of downtown Los Angeles has been approved by the city council.

Council members rejected protests of bypassed businessmen and authorized negotiations with the State Highway Commission for construction which would provide a 1-mi expressway linking two freeways.

Engineers informed the council that funds for right-of-way acquisition were available and that further appropriations for the project are expected to be in the next highway budget.

Willamette Basin job pushed by Engineers

Lookout Point Dam work goes into high gear near Eugene, Ore.—aggregate plant erected for Detroit Dam

With the awarding of two contracts for railroad and highway relocation and track laying, construction work on Lookout Point Dam has gone into high gear. The dam is a unit of the Willamette Basin flood control, power, navigation and irrigation project in western Oregon.

A $2,846,611 contract for relocating the Southern Pacific Railroad and Oregon State Highway 58 for a distance of 4½ mi at the dam and reservoir site, on the middle fork of the Willamette River 25 mi west of Eugene, was awarded to Guy F. Atkinson Co. Utah Construction Co. received the $672,760 contract for laying 8 mi of railroad track.

• **Detroit plant readied**—On another unit of the project, Detroit Dam on the North Santiam River 49 mi east of Salem, an aggregate plant which will provide gravel for concrete and other work is being constructed, preparatory to concrete pouring on the dam itself. More than 40 tons of trusses and other steel were trucked from Portland, Ore., to the Detroit damsite to form the framework for the aggregate plant.

Lookout Point and Detroit Dams, fourth and fifth units of the Willamette project, together will cost more than $125,000,000. They are key units in the basin project, which eventually will embrace 19 stategic dams and cost an estimated $432,000,000. Lookout Point, an earth-fill dam, will store 456,000 acre ft of water and will have a power production capacity of 115,000 kw. It will cost about $74,800,000.

Detroit Dam will create a reservoir holding 455,000 acre ft of water and will have power production capacity of 100,000 kw. It will cost nearly $70,000,000.

• **Big Cliff to follow**—In connection with the Detroit project, a re-regulatory dam, known as Big Cliff, will be built downstream from the main structure. It will be only 182 ft high, compared with Detroit's 463, and will have a power plant capacity of 18,000 kw.

Three dams in the big project—Fern Ridge on the Long Tom River, Cottage Grove on the coast fork of the Willamette, and Dorena on Row River—have been completed at a cost of $21,291,000. Other units, still in the planning stage, are slated for location on South, Middle and North Santiam Rivers, the middle fork of the Willamette, the McKenzie, Calapooya, Tumtum and Little Luckiamute Rivers, on Hills and Fall Creeks, and Waldo Lake.

The entire project is being constructed under supervision of the Corps of Engineers.

CARR MOVES TO CHICAGO

J. Roland Carr, associate editor of *Engineering News-Record* in Cleveland since early 1947, will make his headquarters in Chicago after May 1, continuing as regional associate editor of the paper. He had operated from Chicago from March, 1943, when he joined ENR, until his transfer to Cleveland. Before joining ENR, Carr had served three years each with the Kentucky Highway Department and the American Bridge Co. in bridge design, and 11 years with the Wyoming Highway Department, also in bridge design. His headquarters in Chicago will be in the McGraw-Hill Building, 520 N. Michigan Ave., whence he will cover 24 states from Pennsylvania to the Rockies.

Los Angeles smog control grows rapidly in 2 years

On the second anniversary of the Los Angeles Air Pollution Control District, Gordon P. Larson, director, reported anti-smog installations built during the period cost a total of $12,721,755.

Pointing to the stepped-up pace of air pollution control, Larson said 133 applications for the construction of control equipment were received during March. In addition, he said 148 pieces of smog control equipment were under construction on April 1.

Speaking of the aggravated smog condition prevalent in the county, Larson declared: "Gains in the battle are being made, but a long uphill pull remains ahead."

Meanwhile, after more than a month of investigation, the Los Angeles County Board of Supervisors has set up a $50,000 fund to pay for the importation of seven air pollution experts from the U. S. Bureau of Mines to assist county smog investigators in the analysis of eye-irritants in southern California air.

The final contract was a watered-down version of one originally offered by Dr. Lewis McCabe, now of the Bureau of Mines and formerly smog control chief of Los Angeles.

The first plan offered the supervisors was for a 20-man team from the federal bureau to make a $100,000, six-month study.

McCabe later agreed with the board's findings that 20 visiting technicians would crowd existing facilities.

Decision this year on Nechako damsite

Aluminum Company of Canada seeking location for 1,500,000-hp hydro-electric plant for aluminum works

The Aluminum Company of Canada will determine this year whether a feasible damsite can be found on the Nechako River, in the Tweedsmuir Park area of north-central British Columbia. A 1,500,000-hp hydro development in the area would feed a proposed $500-million aluminum refinery project, said McNeely Dubose, vice president of Alcan.

Dubose, in Victoria, B. C., to discuss terms of a water rights agreement with the provincial government, said that Kitimat, near Terrace, is the most favored site for the projected plant. Problem of construction of the power line from Kemano River, site of a proposed power house, over 50 mi of mountainous country, to Kitimat, however, may not be resolved for some time, he said, because of difficult terrain.

• **Difficult transmission**—If the transmission line follows the shoreline to Kitimat, it must be carried around or over sheer cliffs; inland it must go over or circumvent high mountains. Air surveys last summer disclosed a pass that might be suitable for the power line but further groundwork is essential before the route can be listed as satisfactory.

Despite British Columbia's worst winter on record, Alcan's survey in the Tweedsmuir Park area has been going on, and is continuing.

A crew under Frank Calder, Alcan hydro engineer, has been measuring and gauging river flow and weather conditions. Metering equipment has been supplied by the Dominion Water and Power Bureau, and the survey generally is under direction of C. E. Webb, district engineer.

• **Drilling resumed**—Drilling and work necessary to prove up a suitable damsite was halted during the winter, but is being resumed. Last year one damsite proved unsuitable because of the depth of bedrock on one side of the Nechako. This year it is expected engineers will test a site below the Nechako Canyon, which would involve a somewhat higher dam to obtain the same water level in the lakes above. Another alternative likely to be examined involves construction of two dams, one on the Ootsa River, the other at the end of Tetachuk Lake, which would provide the same storage basin.

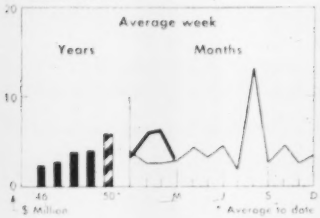
Mr. Dubose has been in France, Norway, Italy, Spain, Switzerland and Britain during the winter studying power developments there.

CONSTRUCTION BUSINESS

Waterworks contracts will set record

Municipalities are contracting waterworks projects at a record rate this year; by year's end, contract volume will have set an all-time high.

• **So far this year**—Contracts through April 20 total $80 million, an average of $5 million a week. That is 85% above last year.



A few states account for a big share of this volume. Texas has averaged $2 million a month; elsewhere, large individual projects include: a $5.5 million transmission main in Chester, Pa.; the $5.6 million Northeast Water Tunnel at Detroit; and the $17.9 million Downsville Dam in upstate New York.

• **Outlook for the rest of 1950**—The outlook this summer is for continued high volume.

Some of the larger programs that will probably reach the contracting stage this year are: Chicago's $75 million development; Baltimore's major expansion program—$19 million of bonds were sold this month, and $22.5 million more will be voted on in the November elections; Mobile, Ala.—getting under way on a $7 million water supply program; and Detroit, with about $6 million more contracts to be let this year.

The postwar demand is as pressing as ever, in spite of $664 million of waterworks construction contracted since the war's end. The backlog of proposed work continues to grow.

• **Backlog**—ENR's backlog of proposed waterworks construction is now $1,330 million. That's enough to support six year's construction at last year's rate of contract awards.

The backlog dropped off $6 million in March, as more projects were contracted than proposed in that month. But, in spite of the record volume of contracts this year and last, the backlog has gained $131 million since January 1; that's because of the $140 million Cannonville dam proposed by the New York City Board of Water Supply. During 1949, the backlog rose only $50 million, as the planning pace slowed down and actual construction continued at the record high level of 1948.

Waterworks backlog by regions has shown these trends since January 1: New England up 9%; Middle Atlantic up 36%, but excluding the Cannonville dam, it is down 8%; South, no change; Middle West up 2%; West of Mississippi up 2%; and Far West up 2%.

About 75% of waterworks projects contracted this year and last came out of the backlog. The rest were put under contract without previous listing as proposed work.

Performance targets for construction businesses

The Accounting Corporation of America has set up a Barometer of Small Business—a service to contractors, and materials and equipment companies. It shows operating statistics of the more efficient companies in each type of business.

It compiles monthly operating figures from statements of 65 general contractors, 47 lumber and building materials retailers, 52 plumbing and heating companies, 94 hardware stores, and 38 paint, glass and wallpaper stores.

Lumber supply still lags behind orders

New orders for lumber ran 10% ahead of production in the first week of April. This is the same pattern that prevailed in March.

Although production is increasing, supply still lags behind the record demand. Production the first week in April was 5% above last year, and orders were up 16%.

Tight supply at the distributor level cannot be relieved quickly by greater mill production. Shipments by the mills so far this year have been 15% higher than current production. This has drawn down softwood stocks, so that they are now equal to 44 day's production, compared with 54 days a year ago.

But production is rising slowly to meet the big demand. Lumber production in March was 7% above last year and 1% above 1948.

Cost of living turned up 0.3% in March

The cost of living in March was 0.3% higher than February. This upturn reverses the slow downward trend of the past year.

But the March index, at 167.0 (1935-39 = 100), is still 1.5% below a year ago. The Bureau of Labor Statistics computes the index as of the 15th of each month.

A 0.6% rise in the food price index accounted for most of the increase in the total index.

Workers in gun battle over moving materials

A long-smoldering feud between carpenters and laborers exploded into a blazing gun battle last week on a St. Louis construction site.

Police said the shooting was over who should move lumber and other materials on the construction job.

Wage settlements—

• **Detroit**—Some 15,000 Detroit building trades workers will get wage boosts of 10½-12½ cents an hour, effective May 1.

Unskilled laborers are up 12½ cents to $1.80; bricklayers and stone masons are up 12½ cents to $2.75; semi-skilled laborers get $1.88, mortar mixers $1.93 and sewer workers $2.03.

• **Akron**—Carpenters, painters, laborers, and plumbers and steamfitters in Akron, Ohio, have signed one-year agreements giving pay increases of 7½-12½ cents.

The new contracts cover 3,500 workers in Summit and Medina Counties. These rates run from 20 to 32½ cents lower than in nearby Cleveland and Cuyahoga Counties.

Carpenters receive a 12½ cent increase to $2.37½ an hour. Common laborers to get a 10 cent rise to $1.65. Plumbers and steamfitters are up 7½ cents to $2.44, and painters are up 7½ cents to $2.12½.

• **Boston**—Sheet metal workers and roofers in Boston will get a welfare fund—the first in the area. A 4% payroll tax will provide life insurance and hospital care and accident and health protection for workers on the job. Cost is set at 10 cents hourly.

• **New London, Conn.**—Bricklayers have signed a contract continuing the present wage rate of $2.50 an hour until April 1, 1951.

The contract also calls for payment by the employers of seven cents of each man's hourly pay into the welfare plan of the AGC State Building Trades beginning May 15.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 78, went to press.)

Lookout Point Dam—Morrison-Knudsen Co., Inc., Boise, Idaho, was low bidder at $18,699,031 for completing earth embankment, dam structure, and constructing concrete spillway for Lookout Point Reservoir, on Middle Fork, Willamette River in Oregon when U.S. Engineers, Portland, opened bids April 20. Engineers estimate is $18,980,375.

Homes—Arthur B. McBride, Cleveland, plans residences in Bay Village O. Estimated cost is $5,750,000 for the housing project.

Stripping Plant—Stone & Webster Engineering Corp., Boston, Mass. will design and construct stripping plant to extract by-products from natural gas at Cabe, Ky., for Tennessee Gas Transmission Co., Nashville, Tenn. Estimated cost will be from $9,000,000 to $12,000,000.

Military Housing—Cropsey Construction Corp., New York, N.Y. has been selected as sponsor to construct, manage and finance garden apartment at Hempstead, N.Y., for Mitchell Field personnel under the Wherry Act. The project will cost about $5,000,000 and owner will construct with own forces. Oscar Silverstone, Brooklyn, is architect.

Generators for Chief Joseph Dam—Westinghouse Electric Corp., Seattle, Wash., was low bidder for supplying four generators for Chief Joseph Dam, near Bridgeport, Wash., at $4,277,100. U.S. Engineers, Seattle, opened bids April 18 at Seattle.

Replacing Gas Feed Lines—Chattanooga Gas Co. awarded contract for replacing gas feed lines and converting to natural gas in Chattanooga, Tenn., to Stein Construction Co., Nashville, at about $3,000,000.

Sewers—City of Hamilton, Ont., plans constructing trunk sewer in Mountain Township to cost about $3,500,000. Proctor, Redfern & Laughlin, Toronto, are consulting engineers.

Military Housing—Bucco Corp., Fort Worth, Tex., was low bidder for proposal to manage, finance and construct housing at Carswell Airforce Base, near Fort Worth, at $4,700,000, when Department of Air opened bids.

Pulp and Paper Mill Additions—MacLaren Co., Ltd., Buckingham, Que., plans pulp and papermill addition to cost about $2,000,000, at Buckingham, Que. Standler, Hurter & Co., Montreal, are architects for the mill project.

Road and Bridge—Pennsylvania Highway & Bridge Authority, Harrisburg, Pa. awarded contract for divided highway in Erie County to Baldwin Bros. Paving Co., Cleveland, O., $2,532,136, and for bridge over Monongahela River to Fort Pitt Bridge Works, Pittsburgh, $2,007,145. S. P. Longstreet is engineer for Authority.

Apartments—The Chesapeake Gardens, Baltimore, awarded contract to Henry A. Knott, Inc., Baltimore for 54 garden type apartments in Aberdeen, Md., to cost about $3,000,000. Shreve, Walker & Associates, Detroit, Mich and Cyril H. Hebrank, Baltimore, are architects.

Airport Improvements—M. A. Gammino Construction Co., Providence, R.I., has been awarded contract at $1,197,116 for runways, taxiways and other improvements at Theodore Francis Green Airport, Warwick, R.I., by State of Rhode Island, Providence.

School—State of Connecticut, Hartford, plans constructing auditorium at Bullard Haven Technical School, Bridgeport. Estimated cost is $3,395,000. Frederick J. Dixon, Bridgeport, is architect.

Bridge Superstructure—Pennsylvania Turnpike Commission, Harrisburg, awarded contract superstructure bridge over Allegheny River, to carry western section of Pennsylvania Turnpike, to American Bridge Co., Philadelphia, Pa. $2,135,576.

Apartment—Irving Kaskel, Brooklyn, N.Y., will construct apartment in Brooklyn with own forces. Estimated cost $2,500,000. Philip Birnham, New York, N.Y., is architect.

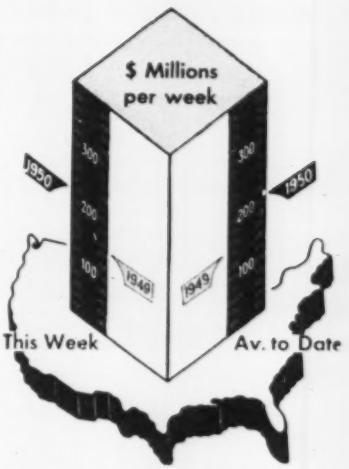
Canal Improvements—Bureau of Reclamation, Tracy, Calif., received low bid for earthwork, concrete, lining and structures for Delta-Mendota Canal in California: Schedule 1 from A. Teichert & Son, Sacramento, Calif., $427,139 and schedule 2 from Haas & Rothchild, San Francisco, Calif., $1,107,753.

Hospital—Le Bonheur Children's Hospital, Memphis, Tenn., will take bids May 29, for the construction of hospital. Estimated cost is $2,000,000. J. Granger Smith, Inc., Memphis, is architect.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base — 100		1913	1926
Construction Cost	Apr. '50	491.94	236.47
Building Cost	Apr. '50	362.78	196.11
Volume	Mar. '50	351	154



Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

	Week of Apr. 27 1950	Cumulative (17 wks.) 1950	Cumulative (17 wks.) 1949	% chge
Federal	$6.8	$470.9	$362.7	+30
State & Mun.	88.1	935.9	877.7	+15
Total Public	$94.9	$1,406.8	$1,240.3	+18
Total Private	124.2	2,013.2	1,221.8	+64
U. S. Total	$219.1	$3,420.2	$2,462.1	+41

Contracts by type of work

	This Week	Cumulative (17 wks.) 1950	Cumulative (17 wks.) 1949	% chge
Waterworks	$3.6	$83.6	$52.0	+60
Sewerage	2.6	74.3	73.5	+1
Bridges	8.9	165.8	169.8	−2
Highways	29.3	337.4	189.7	+77
Earthwork, Waterways	4.9	128.7	203.1	−36
Buildings, Public	28.4	620.7	521.4	+19
Industrial	27.0	354.6	339.7	+4
Commercial	89.1	1,493.3	775.4	+93
Unclassified	15.3	281.6	188.1	+50

NOTE: Minimum size projects included are: Waterworks and waterway projects, $25,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative (17 wks.) 1950	Cumulative (17 wks.) 1949	% chge
Corporate Securities	$595.2	$843.4	−29
State and Municipal: Excl. Housing	612.8	589.1	+2
Housing	198.8	215.4	−7
Total Capital	$1,406.8	$1,648.9	−15

UPPER WALE in place for Venice, Ill. power plant intake pumpwell; lower wale formed for concrete placement. Note steel-pile wale supports.

Concrete Cofferdam Wales Give Maximum Work Space

F. L. Jenkins,
Vice-President, Western Foundation Corp., New York, N. Y.

BRACING a 97-ft dia. open sheetpile cofferdam with circular concrete wales permitted unobstructed work on a pumpwell for a condensing-water intake. Work was part of an extension at Union Electric Power Company's plant in Venice, Ill., just across the Mississippi River from St. Louis. The cofferdam, of Z sheet piling, had only two wales to hold it against a 55-ft differential head of earth and water.

And construction of the 250-ft intake itself featured: (1) Assembly of steel pipes in a frame above the water, and (2) lowering 40 to 50-ft sections of this assembly 50 ft in a wet cofferdam, for concreting and permanent connection. All of the structure rests on H-section-core caissons socketed in bed rock.

Condensing water for the original plant is supplied through a pumpwell that was sunk as an open-dredged caisson. Difficulties in sinking this caisson, included buried trees and other obstructions that caused serious tilting and required great ingenuity in chopping and excavating to avoid use of compressed air. When the job was finished there was some doubt whether this first pumpwell was firmly set on rock.

For the current addition to the plant it became essential to provide

MUCKING INSIDE THE CIRCULAR COFFERDAM—After the two concrete wales had been formed and cast in place and the caissons were set below final bottom level, water was readmitted into the pumpwell area. A floating dredge was then able to remove a 40-ft sand bed, a crushed-stone layer was placed before tremie concrete base. Reinforcing steel and diaphragm forms for sectional tremie-seal concrete can be seen at left; trestle for intake at right.

additional cooling water by construction of a new intake and pumpwell. And it was possible to steer construction procedures around the difficulties revealed by the earlier experience.

Subsurface materials at the site are river sand and silt to a depth of about 80 ft. Boulders and gravel overlie hard limestone rock that is somewhat weathered in the top few feet.

The area selected for the pumpwell construction was at one time the site of a mill and a ferry landing. A number of wood piles stood in the ground, and sunken barges were known to lie adjacent to the site.

Selected contractors were asked to present proposals for construction of the pumpwell and intake. Spencer, White & Prentis, Inc. and Western Foundation Corp., with their subsidiary, Drilled-In Caisson Corp., collaborated on the plan that was adopted.

The pumpwell cofferdam had its top at El. 30; bottom of pumpwell, El. 32; rock, El. 53; and maximum recorded high water is El. 43. (As anticipated, the cofferdam did flood during the job, but without damage to the work, other than a certain amount of delay.)

Sheetpiles for the cofferdam were Z-section, driven to a toe hold in a boulder formation 10 ft below the planned excavation level.

• **Wale design**—Wales were designed as circular beams 4 ft high, with an effective depth of 4 ft 6 in. The center of the top wale was at El. 6 (24 ft below the top of the sheetpiles). The center of the lower wale was 14 ft below the upper, about 24 ft above the bottom of the tremie seal.

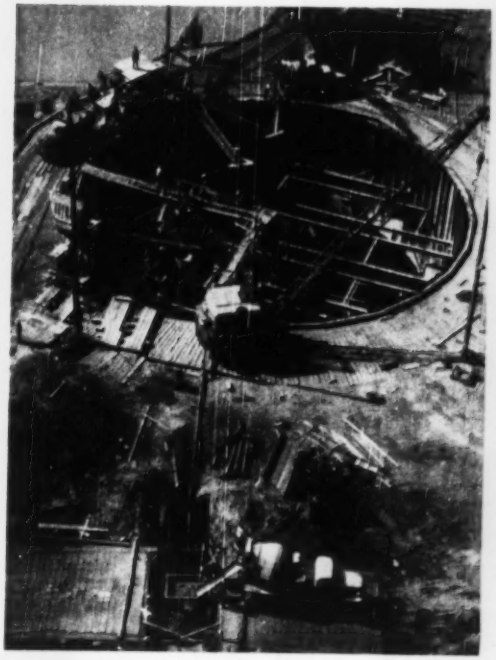
These concrete beams were heavily reinforced, having twelve 1¼-in. square bars continuous at 3 and 9 in. from both the inside and outside faces of the beam. Additional 1¼ in. bars were spaced at 6 in. c. to c. along the top and bottom of the beam, making a total of 58 bars. Stirrups were 2-in. round bars, 18 in. c. to c. High early strength cement was used in the mix, which was designed for a compressive strength of 4,000 psi. This reinforced beam was designed to resist unequal forces that tended to push the cofferdam out of round. No measurement of stresses was made, but there was little indication of strain in the wales.

Work on and in the cofferdam demanded access for heavy equipment all around. This access was provided by a pile-supported circular trestle that also served as the upper templet for driving the sheetpiles. The area to be enclosed was excavated to El. +11 —about winter river stage. A lower inner templet was laid at this level, then sheetpiles were set in position for the full circle, and driven. The piling was set with such precision that the closing sheets slid into place without the job-made sheet frequently required.

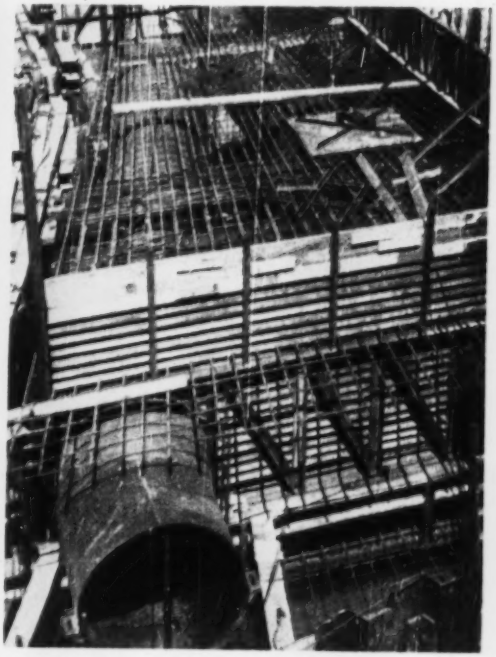
Excavation was carried to the top wale level, and the wale formed and poured before excavation was carried to the lower wale location. (The circular wales were supported vertically at ten points in the cofferdam by steel H piles driven to rock.) The concrete rings were formed by spreading steam cinders to grade on the sand inside the cofferdam and building inside and outside walls of lumber. The inside form was braced against staked sills in the sand and the outside form was set against the sheetpiles.

More water than was anticipated came into the cofferdam. To reduce the possibility of inflow "quickening" the sand to a condition where a blow might occur, the cofferdam was partly refilled by slamming in sand to about the elevation of the top wale.

• **Caissons driven**—Next operation in the cofferdam was to drive twenty 30-in. dia. caissons to rock and then drill



TREMIE POUR required a variety of concreting equipment, including transit-mix trucks (feeding direct to tremie hoppers or to concrete pump in foreground) and two pavers. Beams carry tremies, do not brace cofferdam.



INTAKE PIPES were assembled in steel frame above water. Reinforcing steel was added, then assembly sections were lowered to place in wet cofferdam for connection and incasement by tremie concrete.

6 ft 6 in. sockets into the rock for insertion of 14-in. 264-pound H-sections to carry the load of the structure. (Maximum permanent load is 1150 tons per caisson downward, with 550 tons temporary uplift.)

During installation the caisson shell extended to the surface of the sand inside the cofferdam, but the H-core was cut to a length that would just reach the top of the tremie seal; a short reinforcing cage was placed at the pile's top. After concrete was placed underwater (in the caisson) to a level 1 ft above the design bottom of the tremie seal, making the H-section and shell of the drilled-in caisson into a unit, the caisson pipe was burned off at this elevation and the top portion removed. The H-core and reinforcing cage extended into the tremie seal space for transfer of compression and uplift forces.

At this stage the cofferdam had 40 ft of sand in it above the elevation of the bottom of the tremie seal and was entirely open for 97 ft dia. This large open area, made possible by the circular wales, permitted sand removal by a hydraulic dredge pump operating from a barge floating in the cofferdam. As soon as excavation was complete a layer of crushed stone 1 ft thick was placed over the bottom, as a base for tremie concrete.

• Seal placed sectionally—To keep the size of pours within limits that could be completed in one operation, and to avoid the danger of equipment breakdown interruption of a large tremie pour, the cofferdam area was divided into three sections by forms along two sides of a center third. Reinforcing for tremie seal was assembled into mats on flat ground adjacent to the cofferdam. These mats had holes to match the locations of the drilled-in caissons. The forms for the center third of the cofferdam were assembled complete ready to receive concrete. Panels were fabricated with lightweight sheetpiling with corrugations horizontal to form keyed surfaces. Ends of the panels were hinged to pass the ring wales, for subsequent alignment by divers. After installation, openings that occurred under the form or at the ends were filled with sacked concrete which were also placed by the divers.

In preparation for tremieing the concrete, five pairs of trussed beams, spanned the cofferdam; on these, concrete hoppers carrying tremie pipes were arranged to slide.

Part of the tremie seal concrete came from commercial plants in transit mix trucks that delivered either directly to tremies or to a concrete pump. Dry batched material, also from commercial plants, came to two pavers that operated on the work platform. On the first third of the tremie mat, 800 cu yd of concrete was placed in 16 hours. For the last third only 7 hours were required.

Concrete placement was entirely satisfactory and the seal was tight when unwatered at a differential head of 36 ft. Laitance was cleared from the seal's surface and necessary keyways were cut to prepare the surface for a reinforced slab varying in thickness from 4 in. minimum to 2 ft 3 in. maximum. This slab was designed to act integrally with the tremie mat and form the bottom of the pumpwell.

Open work space again paid off in forming the intricate pumpwell structure above the mat. Forms were made in large reusable panels that could be moved freely around the circular structure. Concrete for the permanent structure was placed by pump and pipeline so that job cranes were available to set steel, move forms and the like.

• Intake construction—Second major feature of the construction was installation of the intake, extending 250 ft out into the Mississippi. The intake centerline is 26 ft below mean river stage and 40 ft above good foundation material.

The intake also was constructed inside sheetpile protection but this section was not designed to be pumped out. Wood-pile trestles were built on both upstream and downstream sides of the permanent structure, to accommodate crane operation around the work and help support the cofferdam. From the trestle, Z sheets were driven varying depths into the river silt, with the outshore end embedded in the underlying rock. Before driving, holes were cut in the piling at a level that would be below water, so there could be no differential head on the piling. Earth inside the cofferdam was excavated to El. —23, which allowed space for 18 in. of crushed stone to carry tremie concrete.

The permanent intake frame structure contains three 6 ft 6 in. pipes, 19 ft c. to c. with their centers at El. —13.75, and one 3 ft 6 in. dia. "warming line" (above intake pipes on the upstream side) through which warm water is discharged at the intake in cold weather to keep ice from entering the cooling lines. Frame and pipes are incased in concrete. Five pairs of 24-in. dia. drilled-in caissons with 53-lb H-section cores, and one pair of 30-in. caissons with heavier cores, extending 3 ft into rock, support the intake.

The intake was placed in six sections 40 to 50 ft long, with a short closure length adjacent to the pumpwell. For each section the three intake lines and the warming line were assembled in a structural steel frame suspended on brackets from the cofferdam sheets, vertically above final position.

Both ends of the first section and one end of each of the succeeding sections were bulkheaded to prevent longitudinal flow of concrete. Concrete-reinforcing steel was erected on the structural frames, for setting as a unit.

• Sections connected under water—Connection of the successive pipe sections was effected by a butt strap—a 12-in. by ½-in. circular plate around the pipe at the joint. The bottom half was welded to the first section placed; the top half was welded to the next section, with a bracket at the joint for 1-in. bolts that were placed by a diver. Sections were lowered successively, from the outshore end to the pumpwell.

Hand hoists picked up a section, brackets were cut loose, and the hoists lowered the section to position. Cables held it in position until tremie concreting (full depth over caissons and crushed-rock mat) was completed. Concrete was not placed for any unit until at least the next adjacent section was in position.

Final operation was removal of the circular cofferdam and part of the sheetpiling used for protection of the intake. The circular cofferdam was backfilled with sandy material dumped into water to consolidate it as much as possible. The concrete ring wales were cut to remove the sections where the intake connects to the pumpwell, and the sheetpiles of the circular cofferdam were pulled. The sheetpiles and the work trestle around the intake were removed to complete this portion of the work.

For Stone & Webster Engineering Corp. who designed and supervised construction of the plant extension, general supervision of design was the responsibility of F. A. Dockstader and W. S. Colby. G. H. Hill was in charge in the field, with Albert Smith serving as resident engineer. Stanley Stokes is chief engineer for Union Electric Power Company. Chas. T. Main, Inc., did the detailed design of the pumpwell and intake.

Western Foundation Corporation and its associates, Spencer, White, & Prentis, Inc., and Drilled In Caisson Corporation were represented on the work by Harry Larson until his death early in 1949. John Herlihy, field engineer from the start of the work took over as superintendent to complete the project.

Record Size Expansion Joints for Davis Dam Penstocks

NEAR RECORD SIZE expansion joints (46 ton, 22 ft ID) are being installed in penstocks of Davis Dam on the Colorado River, 65 miles below Hoover Dam.

Actually, the joints have little to do with expansion in the five penstocks. Their function is to allow differential movement between the intake and powerhouse structures. Movement of the penstocks proper is effectively limited by fins welded to them and embedded in the encasing concrete.

Movement of the intake structure relative to the powerhouse may occur due to variation in loading at different water surface elevations. The expansion joints provide for 2 in. vertical and 3 in. horizontal movement. USBR engineers computed these movements on the basis of an assumed modulus of elasticity of the foundation.

Original design had the intake and powerhouse structures close together and with parallel axes. One expansion joint was provided for each penstock. However, when unexpected foundation conditions were encountered, the powerhouse and intake structures were separated by a small angle (ENR June 12, 1947, vol. p. 948). As a result the penstocks differ in length: No. 1 is almost 300 ft and No. 5 is 167 ft. Three expansion joints are installed in penstock No. 1, one in penstock No. 5 and two in each of the other penstocks.

The joints consist of heavy inner and outer sleeves, with two stuffing boxes containing lubricated flax packing that is compressed by packing glands. To insure free movement and prevent corrosion, the inner sleeves are nickel coated on the outside.

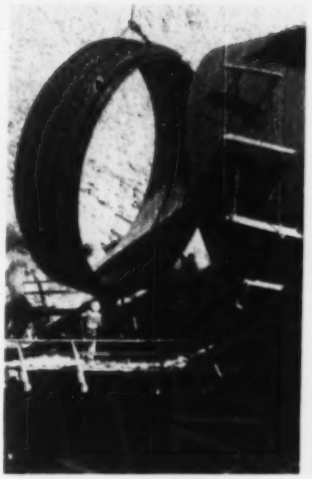
Six of the ten expansion joints are of the type shown in the accompanying illustrations, with a 26¼ in. wide center piece holding the packing gland bolts. The four other expansion joints have only a 14 in. wide ring as a centerpiece. These latter joints permit slightly less movement and are considerably lighter in weight.

Each expansion joint is enclosed in a concrete chamber and so is not subject to the direct rays of the sun. USBR engineers plan on a periodic tightening of the packing gland bolts to insure a leak-proof fit.

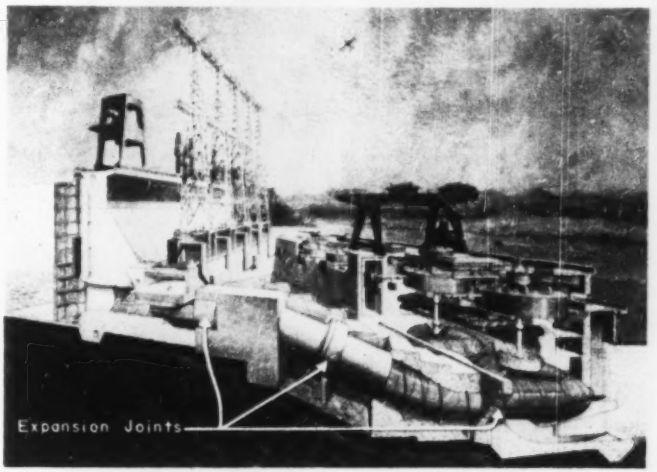
The ten expansion joints were fabricated at a yard near the dam. Moved to the dam by trucks, they were unloaded and set in place by unloading cranes. Actual positioning involved an intricate system of jacks and come-alongs. To add to the difficulty of the work, the center lines of some of the joints were as much as 20 deg. from horizontal.

Davis Dam is a project of the U. S. Bureau of Reclamation (ENR July 14, 1949, p. 32). E. N. McClellan, chief engineer. H. E. Bahmeier is Davis Dam construction engineer.

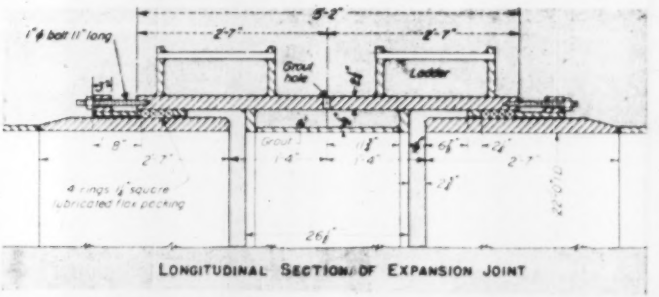
Penstocks were fabricated by Southwest Welding & Manufacturing Co. and installed by the J. H. Pomeroy Co., Inc. Southwest has a contract directly with the USBR; Pomeroy's contract is a subcontract under the joint venture headed by Utah Construction Co. that holds the prime construction contract. J. R. MacDonald is project manager for Pomeroy and H. E. Williams holds a similar position for Utah.



SIX EXPANSION JOINTS like this are welded into Davis Dam penstocks. Rods around perimeter serve as ladders for workmen tightening packing gland bolts.



EXPANSION JOINTS will allow differential settlement between the intake structure (left) and the powerhouse (right).


1" ϕ bolt 11" long
5'-2"
2'-7"
2'-7"
Grout hole
Ladder
8"
Grout
14"
14"
11"
6¼"
4¼"
2'-7"
4 rings ¼" square lubricated flax packing
26¼"
21"
R 20'-0"

LONGITUDINAL SECTION OF EXPANSION JOINT

EIGHTY PACKING GLAND BOLTS will exert pressure on the lubricated flax packing of the stuffing box on each side of the expansion joint.

Some Principles Of Lightning Protection

Edward Beck

Manager, Lightning Arrester Engineering
Westinghouse Electric Corp., East Pittsburgh, Pa.

LIGHTNING STROKES average 9.5 from each square mile of sky area in regions of 30 storm-day incidence.

You can make your buildings safe against lightning damage. The latest theories on lightning show how.

One theory, for example, explains how a lightning stroke forms, and is a guide to effective protective measures: (1) The charge accumulates in a cloud, equal and opposite charges forming simultaneously in the earth below; (2) A pilot streamer starts earthward when the charge builds up to sufficient intensity; (3) When it comes close to the earth, a short streamer rises to meet it; (4) The streamers meet, establishing contact between cloud and earth or some object connected with the earth.

• What happens—Establishment of this contact is like closing a switch between two opposite charges—one charge residing partly in the stroke channel and partly in the cloud, and the other charge in the earth. A high impulse current first flows to neutralize the charge in the stroke channel and may then turn into a moderate current of longer duration than the first peak to exhaust whatever charge remains in the cloud. As the potential in the charge center—from which the stroke started—falls, other adjacent charge centers in the same cloud may discharge into it and down the same channel, thereby producing successive current peaks.

In general, lightning stroke current rises to its maximum in from 1 to 10 microseconds (millionth of a second), declines to half value in from 10 to 100 microseconds and has a life of a few thousand microseconds. The crest of the current may be from 1 to more than 160,000 amp.

Consideration of the formation of lightning strokes makes it apparent why tall projections from the earth's surface are struck more often than adjacent areas and why there is a zone around such a projection, a region seldom struck. If the path of the pilot streamer is close enough to the top of a tower, the electric field between the tower and the leader's tip becomes sufficiently intense to draw a streamer from the tower toward the leader. Contact is made and the stroke current passes through the tower. Therefore, there is a region surrounding the tower where strokes are highly improbable.

• Probability of hits—It is of some interest to speculate on the probabilities of a building being struck.

From data obtained in field research, it has been concluded that in regions of about 30 thunderstorm-days per year, there are about 9.5 strokes from each square mile of sky area. (In the region of the Carolinas, with some 40 storm-days per year, the figure is about 13 strokes).

On the average, masts up to about 600 ft in height are likely to be struck once a year for every 275 ft of height. (In the Carolinas, the probability is once a year for every 30·40 x 275 or every 200 ft of height.) Above that height the probabilities increase faster, because the field at the tip of a very high structure becomes so intense as the charge in the cloud and the earth are built up that the pilot streamer starts upward from the structure instead of downward from the cloud.

After weighing the data for masts, the statistical data on strokes to transmission systems or overhead ground wires, and the probabilities of strokes to open country, the conclusion is reached that a building 100 ft square and 30 ft high will be struck on the average about once in 10 or 15 years. Within certain limits, the chances of being struck vary with its height but not in the same ratio as its area. For example, a tall building is considered as a mast. Thus, a building 200 by 100 ft and 60 ft high may be struck four times as often or once in 2½ to 4 years.

It should be borne in mind that nearby structures or adjacent hills may reduce the exposure. On the other hand, a building on a hilltop or a hillside may be subject to more strokes than one on level terrain.

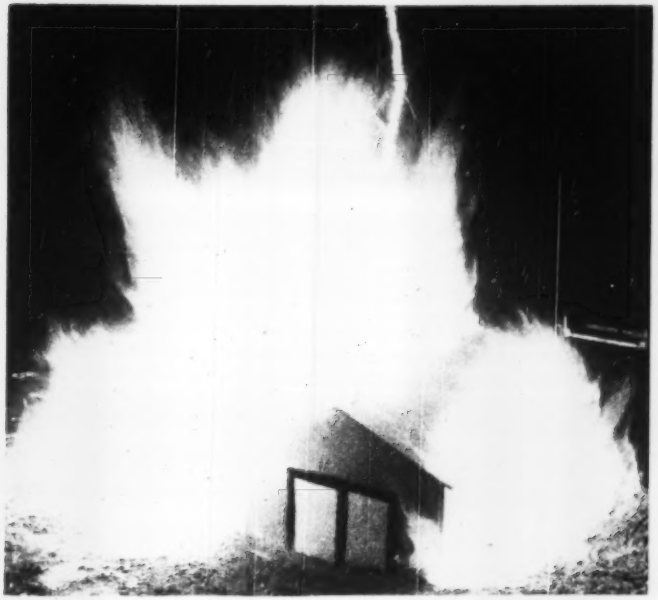
These figures are average and will be influenced by local conditions. Also, the building can be protected by well grounded masts or rods. For example, with a mast projecting 55 ft above the middle of the roof, the building itself would be struck once in 10,000 years, although the mast might be struck once every ten years. A greater number of shorter masts or rods can accomplish the same result; for example, four masts each 15 ft in from the corners and projecting 15 ft above.

Lightning discharges produce voltages in structures such as buildings, masts and trees, and from transmission lines or other circuits to ground in two general ways.

(1) If lightning strikes a structure, the stroke current produces voltage depending on the character of the current and the electrical impedance of the structure. In an object of high impedance, such as a tree or masonry, or in a transmission line, high voltages often develop. Damage, such as physical rupture, fire or flashover, sometimes results.

(2) In conductors of low impedance, the voltage between electrically adjacent points will be much lower and no damage will result.

Lightning can be prevented from striking buildings and other structures by shielding with rods, masts or overhead wires electrically grounded. Good



DAMAGE from lightning results from high voltages developed in structures of high electrical impedance, such as the masonry model above. It can be prevented by adequately designed protection systems.

shielding is achieved when of 1,000 strokes terminating at an object or its shield, 999 are dissipated by the shield and only one gets through to the object (0.1 percent exposure).

• **What to do**—The major problem in industrial plants is not so much the protection of the buildings themselves, but rather the protection of the many motors and control devices connected to the electrical circuits.

The first step in safeguarding this apparatus is to keep lightning voltages out of the supply circuit. These circuits vary in vulnerability depending upon how well shielded they are.

Circuits completely contained within well grounded metal buildings will generally not require protection from lightning.

Circuits completely contained within buildings that are adequately shielded by rods or masts will not require protection, if the circuits are of grounded, metal-sheathed cable or conduit. Open wiring in such buildings may require protection.

Open-wire circuits contained in wood or masonry buildings without any shielding should have lightning protection.

Circuits that pass outside buildings and then are not in grounded metal-sheathed cable should be protected regardless of the type of building because lightning can strike the outside sections and thus enter the structure. Arresters and capacitors should be installed wherever the circuits leave the building. Also, the outdoor circuits should be protected by overhead ground wires or other shields. If the circuits in the building are radial (ENR Oct. 2, 1947, vol. p. 454), the remote ends of the circuits should also be equipped with arresters to prevent the building up of voltage by reflection at the end of the line.

Buildings largely of metal, with roof and walls electrically well connected and grounded, may be struck by lightning, but there is little risk of any physical damage or fire. The current is conducted to the ground through the metal without causing high voltage drops in the structure. (Buildings like the Empire State in New York and other skyscrapers are struck frequently without anyone in the building being conscious of it.)

It is important, however, that the metal parts be well connected together so that no high voltages or sparks develop that might cause damage.

The many types of lightning arresters available, many of them highly decorative, are readily available through national manufacturers.

• **Safety against hits**—In considering lightning protection systems specifically, certain basic principles may be set forth. Some of these have been developed by such groups as the National Board of Fire Underwriters, others by individual manufacturers of lightning-arresting equipment.

Basically, the purpose of a system of lightning protection is to dissipate the charges with the least disturbance possible.

To accomplish this, it is necessary that the system be arranged to intercept direct hits, prevent the accumulation of charges on insulated metallic objects, and permit the discharge to pass safely to the ground. Improper materials used as conductors, haphazard coursing, carelessly made splices and joints, and ineffective or inadequate grounds will obstruct the safe passage, of course, and should be avoided.

Since metal provides the greatest conductivity, it is necessary that it be used as the conductor—copper and galvanized iron being recognized by the fire underwriters as "well suited" for the purpose.

The conductor must be in good contact with permanently moist earth to provide a ground connection having low electrical resistance. The number of ground connections will vary with the nature of the structure to be protected as well as with composition of the earth.

"Without the requisite number of effective grounds, no system can provide a maximum degree of protection," according to the fire underwriters. "Therefore, it becomes apparent that the drafting of detailed specifications is the work of experts in the field of lightning protection, and that these connections should be subject to field inspections by those skilled in the art."

Insulated metallic objects should be bonded to the protection system to prevent accumulation of electrical charges, or should be grounded directly.

The interception of direct discharges may be effected by using metal points or air terminals, which are in turn electrically and mechanically connected to the grounds (through conductors). The number, height and location must be determined by the nature of the structure—but generally they should be located on high projections, such as chimneys, towers and gables.

"Here again," say the fire underwriters, "the drafting of details is the work of experts."

Other items that demand detailed specifications are the coursing of roof and down conductors; proper methods of joining and splicing; and proper fastening of connectors.

PONTOON SECTIONS were launched, then joined together, to form 78x30x7-ft hulls capable of swift and easy dismantling

Portable Dredges Split 3 Ways to Fit Through Schuylkill River Locks

Fred J. Schmidt
Chief Engineer, American Steel Dredge Co. Inc., Fort Wayne, Ind.

THE COMMONWEALTH OF PENNSYLVANIA owns four new, completely portable hydraulic dredges, now busy desilting the Schuylkill River from Reading to Norristown. Planned for the job of removing anthracite coal culm from the river bed to riverside basins (ENR Mar. 10, 1949, p. 21), the 15-in. electric dredges are designed for quick dismantling for passage through narrow navigation locks and under low bridges. Each cost $298,000.

The dredge hull—78 x 30 x 7 ft is made up of nine pontoons, bolted together near the deck level and secured with specially designed watertight pin connections near their bottoms. Divided lengthwise into three parts, the hull can get through the narrowest lock on the river and never has to be hauled out and around such obstacles. A minimum amount of machinery must be removed from the dredge in this operation. The main motor, pump and some auxiliary equipment remain aboard. It is estimated that it will take three to four weeks to completely dismantle and reassemble the dredge in a pool-to-pool move.

• **Connection details**—The underwater pin connection for pontoons consists of heavy 3-in. plate tongues welded on all outboard pontoons that fit into box connections in those inboard. The tongue is drilled with a tapered hole, and the connection box in the mating pontoon is fitted with a tapered pin. A packing gland arrangement in the box permits locking the pontoons below water without leakage. The pins made of a special alloy steel—are designed so that packing may be renewed below water.

The same pin arrangement locks pontoons together longitudinally.

• **Overhead clearance**—The dredges must operate under and pass beneath bridges that have a minimum overhead clearance of 15 ft. Normal draft is 3 ft 2 in., and by flooding the six outboard pontoons of the hull, draft can be brought to 4 ft or more, if necessary, to let the deckhouse clear a low bridge.

A combination bilge and ballast system comprises a 2½-in. header on the center pontoons with 1½-in. pipes to the outboard, watertight hull compartments and a cesspool pump for dewatering these compartments through the same lines. There are two 250-gpm service pumps for supplying ballast water; these also supply sealing water for the dredge pump, priming, ladder bearing lubrication, fire and general service.

With draft brought to maximum, the dredge can work under low bridges by lowering the A-frame forward to the level of the deckhouse roof. To pass the entire dredge beneath a low bridge, the spuds on its stern must be unshipped and floated behind while the spud frame is lowered to deckhouse height. Auxiliary hoists on the main drum are fitted for this purpose.

• **Power from ashore**—Power comes from substations on shore, through a 5,000-v submarine-type cable. A special cable connection is located on the stern near the digging spud for

TIMBER SPUDS are unshipped and floated behind dredge and the spud frame is lowered to deckhouse height when dredge must pass under low bridge crossing river.

MATED PONTOONS shown on shore have male and female locking devices.

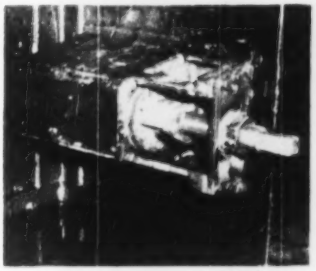
least motion during swinging operations of the dredge. From this connection, cable runs to a substation located on the stern of the dredge inside the deckhouse which contains the primary switchboard for the main motor, a 300 kva, 4,160/440 v transformer and a 440-v switchboard.

The 440-v switchboard controls power for auxiliary lighting panels and auxiliary motors running service pumps, hoist, ladder, cutter and air compressor.

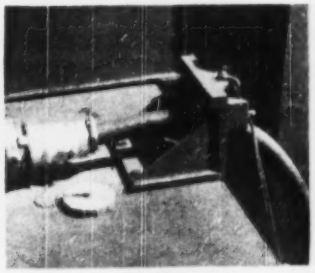
The main dredge pump is driven by a 1,250 hp, 4,160 v, 3-phase, 60-cycle, direct connected motor operating at either 400 or 365 rpm. The pump has a capacity of 9,000 gpm under a total dynamic head of 250 ft. It was expected to pump 400 cu yd of culm an hour; actual performance was hit near 700 cu yd per hour. There is a clean-out in the 15-in. suction pipe in front of the pump. Priming is done with a water ejector using water supplied by the service pumps.

The main hoist is a five-drum assembly with a 25,000-lb line pull at 40 fpm speed. It is powered by a 50-hp, 900 rpm motor. Because of low bridge clearances, the hoist was kept low, and cables leading from its underside run underneath the control room floor. Thus, the dredge deck is kept free of cable obstructions.

In addition to the main hoist, there are two auxiliary drums on the main hoist shaft, one at each end. These



PIN LOCKS LUG IN BOX—A tapered pin in watertight packing slides into the hole in lug on next pontoon, locking it.



POWER comes from ashore through marine-type cable to connection on the dredge. (American Steel Dredge Co. photos)

auxiliaries raise and lower the A-frame and spud frame when necessary.

• **Reaches 20 ft down**—The ladder can be operated with A-frame in either raised or lowered position, and the dredge's 57-in. dia. cutter reaches to a depth of 20 ft. The cutterhead is of the closed-type, driven by a 75-hp motor at either 12½ or 25 rpm.

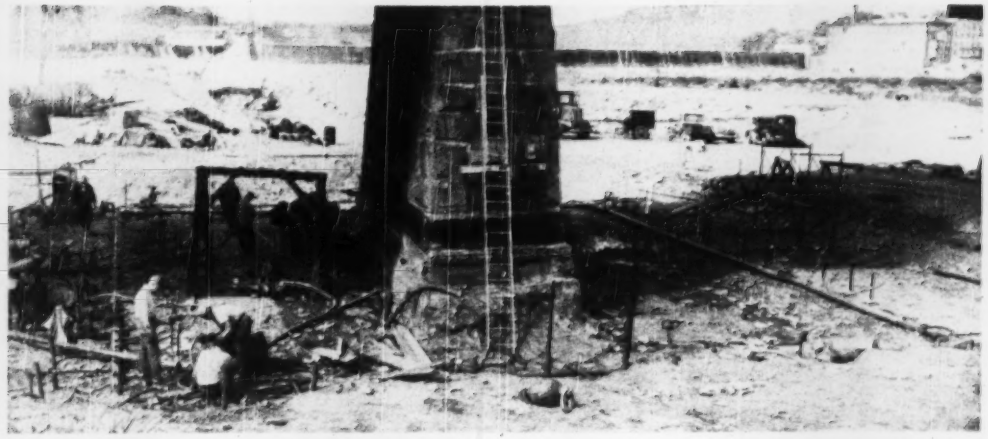
Spuds are 20 in. square and constructed of cross-bolted Douglas fir; corners are reinforced with heavy steel angles. Spud keepers have hinged gates to facilitate removal of the spuds at low bridges.

Heavy sheet-steel panel construction was used on the 65 x 20 x 10-ft deckhouse. Panels are bolted together (inside, for appearance), and joints are sealed with gaskets. All wiring and piping is arranged for easy disconnection—convenient terminal boxes for wiring and flanged joints or unions for piping. Each section is labeled to facilitate reassembly.

An air compressor driven optionally by a gasoline engine or electric motor supplies general service air throughout the dredge. An emergency gasoline driven generator plant is used for lighting when shore power is disconnected.

The four identical dredges were designed by the Schuylkill River Project Engineers, a group of prominent consulting engineering firms in Philadelphia, Pa.

American Steel Dredge Co., Inc., of Fort Wayne, Ind., built and assembled the units.



TOUGH GROUND required special punch and casing for inserting wellpoints that helped dewater bell-bottom caisson excavation on both sides of Connecticut River bridge pier. Pumping from open sumps alongside caissons was also used. (Moretrench photo)

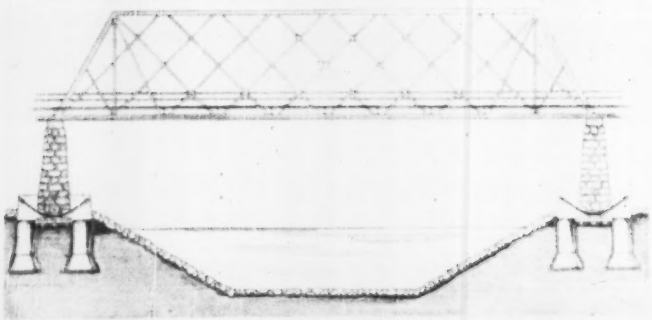
Old Bridge Piers Hang in Underpinning

Two OLD BRIDGE PIERS at Holyoke, Mass. now rest in steel "cradles"—the principal elements of an exacting underpinning job. Each cradle is composed of curved bars (acting as hangers) that transfer the pier loads to new beams running along both sides of the pier. Beams are supported by belled-out caisson foundations.

In addition to careful procedures for placing the underpinning itself, construction includes the solution of a tough problem in placing wellpoints around each pier.

The stone piers are two of several that support a 4-lane county highway bridge across the Connecticut River, a short distance below the Holyoke Water Power Co.'s historic stone dam. Pier underpinning is part of a project to develop 15,000 kw hydroelectric power in a new station at the dam. The project will be complete in 1951. An important feature of the project is the excavation of a deep tailrace from a point 3,000 ft down river, back to the dam. The tailrace, with a top width of 145 ft, passes through a 150-ft space between the two piers at a depth 20 ft below the river bed.

Underpinning was necessary because the piers rested on timber grillages barely below the river bed, and tailrace side slopes, 1 on 2, were to reach almost to the piers. Bottom of underpinning is 15 ft below riverbed.



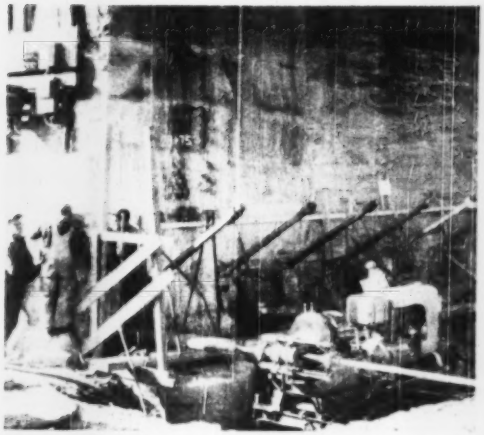
TAILRACE CHANNEL, to be dug between piers resting on timber grillages barely below riverbed, called for an exacting underpinning job.

• **No disturbance permitted**—The drawings show essential features of the underpinning design, which was based on necessity of avoiding any disturbance to material underneath the piers. Caissons go down 10 ft at 5 ft 6 in. dia, then bell out in a 5-ft depth to 9 ft 6 in. dia. Four caissons support each of four header beams. Header beams are 58 and 60 ft long on the respective piers, projecting 4 ft 6 in. at one end, and 5 ft at the other, to frame into collar beams at the ends.

Twenty-three 3-in. square-rod hangers at 2-ft 1-in. spacing transfer each pier load to its pair of beams. Threads are upset, with an outside dia of 3¼ in. The rods, stressed to 120,000 lb, tend to clamp the beams onto the piers. Total dead and live load for each pier is 1,500 tons. The underlying soil is glacial material ranging in size from silt to 20-in. boulders, and containing cemented shingle stone.

• **The construction job**—Work proceeded on both piers at the same time, and tailrace excavation between piers was not started until underpinning was complete.

One of the most difficult problems arose at the outset of work. Wellpoints were chosen to keep caisson excavations dry, but when installation started it was found that ordinary jetting or punching methods could not be used to make holes for wellpoint insertion. The riverbed material was too tough.



HOLES FOR HANGERS were made by a combination of 6¼ in. core-drilling (shown) and percussion drilling. Mastic-covered hangers were inserted and grouted immediately.

TAILRACE EXCAVATION was performed after underpinning was complete. Underpinned pier shown in background. Hanger nuts will be covered after final stress check.

The solution was to drive a punch and casing together, withdraw the punch, insert the wellpoint and withdraw the casing. The punch was a 3½-in. solid steel bar, cone-pointed and hard-faced at the lower end and flattened and hard-faced at the top; a collar welded near the top of the punch bore on the 4-in. inside diameter casing. The length of the casing was such that the punch led the casing by 2 ft. Punch and casing were driven by a double-acting hammer riding in leads hanging from a crawler crane.

About 350 ft of 6-in. wellpoint headers were laid in rectangular plan around each pier. About 100 wellpoints were set at various depths to intercept different water-bearing strata, and water was pumped by a 6-in. gasoline-driven pump.

Additional drainage was obtained by excavating 30-in. dia sumps above the caissons. Open pumping from these sumps was effective in drying up the caisson bells.

• **Caisson work.** Caissons were lowered by hand mining and mechanical mucking after timber grillages were cut where they projected into caisson area. Transverse slots for the suspension bars were cut through the piers by diamond and percussion drilling. The original stone piers (built 1872) are 10 ft thick and are constructed of sandstone in their 40-ft length. An extension of the piers (1890) is of granite in an additional 12 ft. Into each slot a 6¼-in. diamond drill worked horizontally through the pier to form the bottom of the opening, after which percussion drills and broaches shaped the slot near the pier faces to accommodate the upturned portions of the suspension bars. Satisfactory alignment of holes was achieved, with the result that bars were readily set to their required position. As soon as holes were made, hangers were pressure-grouted into the openings. Open holes had to be farther than 8 ft apart; new holes could be opened three days after grouting was complete for an adjacent hanger.

• **Hanger nuts "keyed up."** When all hangers were in, beams were cast, leaving hanger threads uncovered, so that hangers could be stressed. After fourteen days, nuts were "keyed up" in 20,000-lb stress increments, progressively and in rotation, to the full 120,000 lb. A torque of 6,100 lb-ft on a well-lubricated nut yielded full stress. Keying up of bars was done in the lower rings of torques by means of a hand-operated torque wrench working through a gear train with a 12-to-1 mechanical advantage. In the upper range, torques were applied by a wrench with a 6-ft handle, pulled by a cable attached to a power winch. A dynamometer in the cable indicated the force applied to the wrench. After tailrace excavation was complete, stresses were rechecked and hanger ends were encased in concrete.

Jackson and Moreland, Boston, Mass., the engineers for the hydroelectric project, prepared the engineering design of the tailrace and bridge underpinning work for the Holyoke Water Power Company. Robert E. Barrett Jr., President. Daniel O'Connell's Sons, Inc., Holyoke, Mass., is the contractor on the tailrace work, including the bridge pier underpinning. Robert A. Fecher is O'Connell's superintendent.

HANGERS—twenty-three 3-in. square rods—transfer pier load to beams, each of which is carried down 15 ft by four bell-bottom caissons.

UNCONVENTIONAL combination of processes achieves 95 percent BOD reduction in plant serving the 3,000 residents of Castroville, Cal.

Small Sewage Plant Has Unique Layout

A neat, clean-cut appearance results from the in-line arrangement of circular units for Castroville, Calif., Sanitation District's recently constructed sewage plant. To sanitary engineers, however, more interest obtains from the combination of biofilter and activated sludge treatment processes to achieve 95 percent BOD reduction.

This small plant (0.5 mgd) serves a population of 3,000 in the Salinas Valley, 80 air miles south of San Francisco. Only economical available discharge point for sewage plant effluent is the Salinas River by way of a drainage channel that is dry many months of the year. It was necessary to provide an effluent of exceptionally high quality. That's why the two treatment processes were combined.

The plant units from foreground to background in the accompanying photo are control and pumphouse, primary clarifier, biofilter, two mechanical aeration tanks of the Spivavortex type, final clarifier and sludge digester surrounded by drying beds. Size of the installation can be gaged by the diameter (50 ft) of the biofilter. Sewage flows through the plant by gravity after it receives an initial lift in the pumphouse.

Beside reducing the BOD by 95 percent, up to 95 percent of the suspended solids are removed in the processing.

As far as architectural treatment is concerned, all units naturally lend themselves to circular shape. Even the sludge drying beds have been constructed concentric with the digester in pie-shaped quarters.

Construction cost of the plant was $112,000. Converting this to cost per mgd for 100 percent treatment as of equivalent 1926 costs (as proposed by C. J. Velz in ENR Oct. 14, 1948, p. 84), the equivalent cost of $171,000 per mgd. results. This compares very favorably in cost, it being much cheaper than the average reported by Velz.

The Castroville plant was designed by Harry N. Jenks, consulting sanitary engineer, Palo Alto, Calif., under the direction of Howard F. Cozzens, Monterey County engineer, Salinas, Calif., who represented the Castroville Sanitation District in supervising the work. Chester Dudley, senior structural engineer, assisted Mr. Cozzens.

The plant was built by Charles Mc-Closky Co., engineers and contractors, San Francisco, Calif.

How to Build Pavements Stronger, More Durable

Changes in materials, equipment and construction materials to improve the strength and durability of pavement concrete are recommended by F. H. Jackson, principal engineer of tests, Bureau of Public Roads, in an article published in the Journal of the American Concrete Institute, March, 1950:

1. Substitution of effective vibratory methods for consolidating the concrete for conventional surface screeding, which he claims provides no compaction whatever.

2. Use of a low-slump (0 to ½-in.) concrete, designed to be placed by vibration.

3. Reduction of the maximum size of coarse aggregate to 1 in. and careful blending of aggregates to obtain uniform concrete day after day. For this purpose, aggregate should be separated into several sizes, such as, 1 in. to ½ in.; ½ in. to No. 4; No. 4 to No. 16; No. 16 to No. 50; and No. 50 to 0.

4. Redesign of equipment for mixing, transporting, spreading and consolidating pavement to handle the drier mix.

"Our present methods of building concrete roads are wrong," says Mr. Jackson. ". . . A concrete pavement in New York State costs about $4 per sq yd in place, exclusive of reinforcing, or about $100,000 per mile for an average 4-lane highway. The taxpayers have every reason to expect years of useful life from such a pavement. To have serious surface scaling and other defects develop before it is 2 or 3 years old is bad. To permit such a situation to develop simply because we are afraid to change our time-honored ways of doing things is not playing fair with those who pay for and use the roads. Why not do something about it?"

Ohio Sees No Shortage Of Underground Water

Although Ohio industries use an average of 385 mgd of underground water, the state is far from running dry on its underground supply, according to a report by the Water Division of the Ohio Department of Natural Resources.

Ralph J. Bernhagen, state water geologist, said that there are vast areas in the state where additional groundwater is available for development. "Only locally, in certain industrial areas, have groundwater levels been lowered excessively, primarily because of excessive pumpage," Mr. Bernhagen said.

TREACHEROUS PEAT BOG underlying a heavily traveled Ohio highway wrought havoc during attempts to raise the roadway grade—groundwater rose to a 10-ft depth and the upheaved peat folded back over the new embankment.

Grading Job Overruns 1,500 Percent

C. R. Hanes
Field Engineer
Bureau of Construction
Ohio State Highway Department

ALTHOUGH PEAT has many beneficial uses ranging from garden mulch to fuel, it is a poor supporting medium for roadway embankments. The Ohio Highway Department discovered this when it decided to raise a short stretch of roadway grade over a known peat bog, one mile east of Wellington, on State Route 18.

What started out to be a minor grade-raise involving 8,597 cu yd of borrow, pyramided into a major grading job of 135,000 cu yd—an overrun of 1,500%. The project was only 1,500 ft long and the maximum depth of new fill including pavement was less than 4 ft. Moreover, instead of 30 days estimated for completion of the job, it took 15 months.

• **Boggy site**—The existing section of road was known to be underlain with a treacherous peat bog. In fact, the earliest road at this point skirted the peat deposit, which has both a high organic content and usually a high moisture content. Later, the alignment was straightened and a thin earth embankment placed over the peat, topped with a traffic-bound surface.

Some settlement occurred, but in the 1920's the roadway was brought up to grade and paved with concrete. Settlement continued, however, with the passage of time and under increasingly heavier loads.

• **Frequent detours**—During high water low points in the road profile were flooded, requiring foot traffic be detoured several times a year. This route was carrying a high percentage of truck traffic.

When the Ohio Highway Department took over the job of improving the 1,500 ft of highway by raising its grade, the existing embankment and concrete pavement appeared to be in a state of equilibrium. Consequently, it was decided to place a light fill over the old pavement, topped with a new waterbound macadam pavement, surfaced with asphalt concrete.

A contract was awarded to the Ohio Engineering Co., Logan, Ohio, in December 1947. Work was started the following April, with the extension of an existing concrete culvert flanked by two new, corrugated metal arches, 52 in. span and 30 in. rise.

Borrow material was not limited to any special specifications, so the contractor selected a clay material located immediately adjacent to the job. Placement of the borrow material—compacted in 8-in. layers—was begun early in May 1948. On May 21, when the embankment was essentially completed, settlement occurred at two distinct points about 500 ft apart.

• **Filling was futile**—A futile effort was made to restore the grade at these two points by continued filling. But the fill continued to settle. At the same time the natural ground beyond the limits of the embankment began to rise, and cracks started to open up. Groundwater also rose to within 18 in. of the surface.

When it became apparent that the original semi-stability of the road had been disturbed, it was decided that the most economical procedure would be to continue with the placing of the fill.

The plan was to place enough embankment material either to displace the underlying peat, or to compress it sufficiently so it would cause no further trouble.

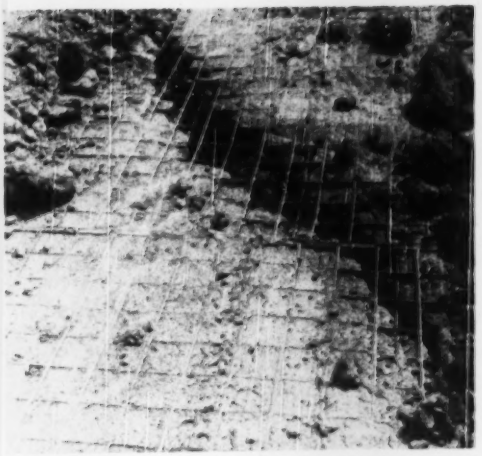
Placing of the fill continued on a day-to-day basis, with settlement during the night offsetting the depth of fill placed during the previous day.

• **Waterhole developed**—After two weeks of this, the continued settlement caused water to collect to a 10-ft depth at one point in the center of the fill area. This prevented continuing to place and compact the fill in regular layers.

Borrow material then was dumped along one side of the water-filled hole and bulldozed into place, gradually filling it. But about this time the edge of the peat bog beyond the limit of the embankment raised in a spectacular upheaval.

Great cracks also opened up, reveal-

FIRST INDICATIONS of trouble ahead were huge cracks caused by subsidence of the added fill and corresponding upheaval of the underlying peat.



AS A FINAL EXPEDIENT diagonal cracks in the new embankment were bridged with war-surplus airfield landing mats to carry the roadway surfacing.

ing large pieces of partly decayed logs. Moreover, the upheaved peat immediately beyond the fill limits started to fold back over the edge of the new embankment. This material was removed by dragline and trucks.

During this truly fluid period the affected area moved eastward to the concrete and metal arch culverts, distorting them until subsequently they had to be replaced with corrugated metal pipes.

After a month of filling and settlement the 200-ft long water-filled area was filled above water level. Then the embankment was continued by placing it in layers and compacting it.

• **Three bad spots.** At about this time another 150-ft length of fill began to subside at an accelerated rate. It was restored to equilibrium in a similar manner, only to discover that a third trouble spot, about 400 ft long, was beginning to subside. This third area was filled and compacted by December 1948.

Check borings at this time revealed maximum depth of 37 ft of new borrow and considerable compression of the peat. The original maximum 43-ft thickness of peat had been reduced to 27 ft, from the weight of the superimposed borrow.

Winter weather caused the work to be shut down for two weeks in December, during which time one 400-ft section settled 2 ft. Filling was continued as weather permitted until February 1949 when settlement was at a very reduced rate. Diagonal cracks, however, began to appear in one 200-ft section. These cracks apparently were caused by a tendency for the mass of fill to be on a sliding plane to the left.

In an effort to close these cracks to permit placement of the paving, additional fill was placed and compacted. This operation was repeated several times until the cracking and settlement being on a reduced basis. However, the cracks continued to reappear to such an extent that it was inadvisable to pave over the critical section.

Last April (1949) the highway department's maintenance forces determined to try a different method of bridging the cracks in the embankment.

• **Landing mats used.** Making use of both experience and materials used in the recent war, the highway department laid 5x12-ft steel landing mats for a 36-ft width over the 400-ft critical section of road containing the cracks in the embankment.

The mats were covered with 1 ft of compacted earth. The next step was to place a stabilized mixture of gravel and binder over the entire 1,500-ft length of new embankment and to open it to traffic until such time that settlement and movement were reduced to permit placing a thin permanent pavement.

This was done and the road was opened to traffic last July 1. Since then traffic continues to be carried over the stabilized gravel surface but no attempt has been made to place the asphalt pavement. Some minor settlements have occurred and some cracks have appeared where the landing mats were pulled apart. Maintenance forces have kept them filled with sand and since they have been developing on a decreasing basis, it is hoped that the asphalt pavement can be placed this summer.

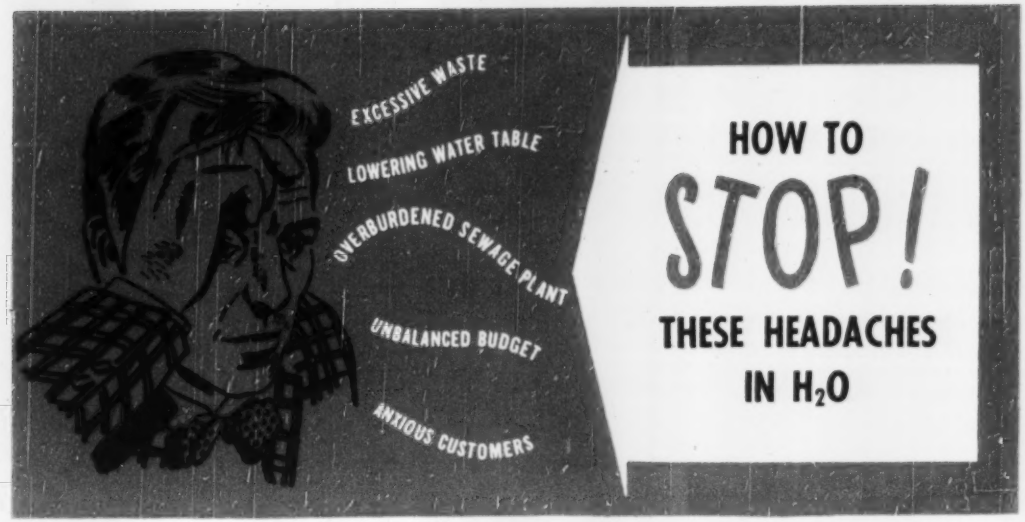
Looking back over the 15-month battle to stabilize this 1,500 ft of road, two modifications in the procedure might have proved effective in speeding the repairs. Carrying the fill section out to a greater width probably would have lessened the tendency of the underlying peat to rise and fold back over the edges of the fill.

Specifying a granular borrow material would have resulted in mats being placed in the water more satisfactorily. Also the granular material would have had less tendency to transmit cracks as was true of the clay material.

• **Engineers in charge.** The project was carried out under the general supervision of the author, acting for the chief engineer of construction. It was started under the administration of Earl J. Reeb, at that time director of the Ohio Department of Highways; Homer F. Anderson, chief engineer of construction and Homer Bracker, division engineer. It has been carried to the present state of completion under the administration of J. J. Kiner, director since January 1949; T. H. Wisman, chief engineer of construction and J. V. Temsic, division engineer.

James Atkinson, division construction engineer and H. H. Nugent, project engineer, were in direct charge of the project.

The present maintenance operations are being carried on under the direction of C. W. McCaghey, chief engineer and J. W. Reppel, assistant chief engineer of maintenance, Ohio Highway Department.



HOW TO STOP! THESE HEADACHES IN H_2O

Without a working meter on every service you can't begin to know where a dwindling water supply is going. You can't stop waste. You can't control costs. You can't equitably apportion water charges. You can't even treat sewage economically. In short, without meters you have no control over a service vital to public health and well-being.

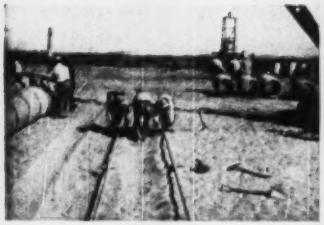
If you are struggling against the odds of an un-metered or only partially metered system, now is the time to do something about it. The nationwide water shortage has made both your consumers and municipal officials thoroughly water conscious. We've prepared a complete program that will help you present the true facts on the advantages resulting from 100 per cent metering in your community. Write today, no obligation involved.

Rx A Pittsburgh Equitable Water Meter on every service!

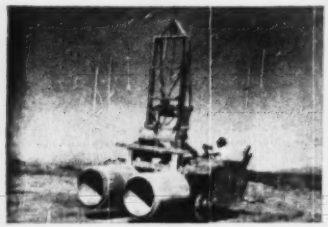
A TYPE AND SIZE METER FOR EVERY NEED

Pittsburgh Equitable Meter Division
ROCKWELL MANUFACTURING COMPANY
Pittsburgh 8, Pa.

Atlanta · Boston · Chicago · Columbus · Houston · Kansas City · Los Angeles · New York · Pittsburgh · San Francisco · Seattle · Tulsa

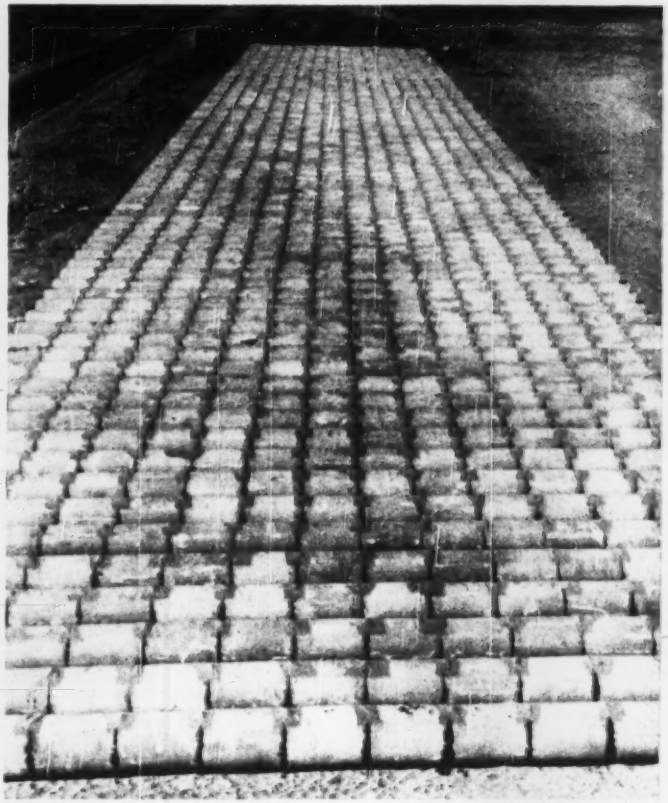


CAREFULLY ALIGNED, smoothed trench, was first prepared for . . .



PLACING 30-in. concrete-pipe culverts, by special double-prong rig.

JOINTS were mortered and covered with sand to aid in curing.



NOT A SUPPLY YARD, but the bed of a new road; 183 pipe culverts, laid on 5-ft. centers will provide drainage in the event of flash floods in New Mexico valley.

Pipe-Culvert Base Keeps Road Dry

As many as 183 parallel concrete pipe culverts were used by New Mexico highway engineers to combat an unusual drainage condition. The culverts are 30 in. dia, are spaced on 5-ft centers, and are each 65 ft long.

The pipe installation is to keep U. S. Highway 70-80 (east of Deming, N. Mex.) dry during occasional minor floods. Multiple culverts are cheaper than high fills because of the expense involved in hauling fill material. Deep channelization is impracticable because abutting farmland might be damaged.

This stretch of highway is in a long, flat, semi-arid valley (Mimbres) less than 50 miles north of the Mexican border. High mountains on all sides drain into the valley, and in times of heavy rains runoff is high. The sandy soil involved does not absorb water readily and as a result, low spots are often covered with water for days after a rain. Thus, the multiple pipe culverts may be partially submerged until the water evaporates or becomes absorbed.

Biggest installation involves 183 lines of concrete pipe, each 65 ft long (16 pipe sections, each 4 ft long are used—the extra foot of length comes from the space allowed for mortar jointing). This complete installation will stretch 912 ft along the road and use 11,712 lin ft of pipe. Other installations involve 69, 43, 26 and lesser numbers of culverts.

Laid in sand—The culverts are laid in a 12-in. layer of sand. To meet the requirement that 10% of the pipe surface be in contact with the bedding sand and at least 6 in. of sand be underneath the pipe, the contractor uses a part-circle screed. This operates on parallel pipe runners set accurately to grade.

Pipe used is ASTM standard C76 culvert pipe. Joints were sealed with cement mortar as soon as placed.

The culverts are backfilled with thoroughly compacted material meeting these requirements: 100% passing 3-in. screen, 55% passing No. 4 sieve, and not more than 30% passing a No. 200 sieve. Backfill is pneumatically hand-tamped in 6-in. layers. No more than a 6-in. differential is allowed between backfill on either side of a pipe.

The backfill is carried 18 in. above the pipe and compacted there by rubber-tired compactors and sheepsfoot rollers. On top of this is a 1-in. asphalt processed base, plus a 1½ in. of asphaltic concrete.

This job is a project of the New Mexico State Highway Department, B. G. Dwyre, state highway engineer. Contractor is the W. T. Bookout Construction Co., Las Vegas, N. Mex.

READER COMMENT

Revised Beam Formula Helpful

SIR: A slight modification of the formula for design of laterally unsupported beams proposed by Samuel Reubene (ENR April 6, p. 46) would be much handier for designers. They could use the AISC handbook beam tables, which give total allowable uniform load in kips for beams laterally supported, if they would multiply the tabulated load by the ratio of L_u to the actual span.

Example: Find the total uniform load in kips that an 8-in. 17-lb wide-flange beam can carry when the span is 15 ft, laterally unsupported. Since the span exceeds the 10-ft L_u value given by the tables, the tabular load—12.5 kips—has to be reduced. For the laterally unsupported beam, therefore, the allowable total safe load is $12.5 \times 10/15 = 8.4$ kips.

RAYMOND J. HEREDIA
Structural Engineer
Blaw-Knox Construction Co.
Pittsburgh, Pa.

For Structural Engineers

SIR: I should like to call the attention of our American engineers in the structural and construction fields to an organization which in the twenty years of its existence has quietly and efficiently acquired for itself a worldwide prestige as a central international clearing-house of technical information, and as a medium for discussion and publication concerning new developments, research and methods in these fields. I refer to the International Association for Bridge and Structural Engineering.

I have before me the current publication volume and the latest congress report of this association, and I am prompted to say that it would be difficult to find anywhere else in one binding so much material of value to structural and construction engineers—and at such low cost.

Developments and research in prestressed concrete, welding, suspension bridges, concrete technology, plate and shell construction, buckling problems, new concepts of inelastic behavior, vibrations, construction methods—these are but a few of the subjects covered, and in most cases the list of authors resembles an international Who's Who in our field.

The aim of the association is to promote collaboration between engineers of different countries for the exchange of ideas, of theoretical and practical knowledge, and of the results of research in the structural and construction fields. A special committee prepares the most important questions and problems of the moment for further scientific treatment and technical research, and suggests how the work may be most effectively carried out, the individual work in the different countries being coordinated to the utmost possible extent. Members are informed by reports and printed publications of the results of practical experiments and research. In addition, congresses are organized at four-year intervals, in order to advance and expand the task of the committee by personal contact with the members.

The idea of creating an international organization of this character originated from two international congresses, the first held in Zurich in 1926 followed by a second held in Vienna in 1928—each organized independently by interested parties, and participated in by over 500 specialists from many different countries.

The International Association for Bridge and Structural Engineering, permanently organized in October 1929, has since held similar congresses in Paris in 1932, in Berlin in 1936, and in Liege, Belgium, in 1948. Although no official announcement has yet been made as to the 1952 Congress, present indications are that it may be held in England.

An increasingly large group of American engineers have for some time recognized the value of, and have held membership in this association. Although the association is managed by a Permanent Committee on which each country has representation in proportion to its membership, the organization functions on a national basis, and the U. S. group operates under articles of association adopted in 1939. A U. S. Council elected by the membership formulates policies and administers affairs of the association here.

The very nominal membership dues of $3.50 per year cover all of the operating expenses of both the national and parent organizations, and members have the privilege of purchasing the publications at reduced rates corresponding essentially to the cost of printing. It is gratifying to note that the U. S. membership represents one of the largest national contingents in the International Association, and is steadily expanding. All members of the association have joined me in the feeling that all American structural and construction engineers should affiliate themselves with this associa-

(Continued on page 49)

PAVEMENT...

The Connecticut River Bridge approach, Old Lyme, Conn., is paved with Darex AEA concrete to increase resistance to freezing, thawing, and de-icing salt action.

At Hume Pipe of N. E., Inc., Darex AEA is used in concrete pipe manufacture to increase production, improve quality.

...or PIPE

Darex *AEA* is a catalyzed air entraining agent, specifically formulated for making air entrained concrete. Darex AEA is being used in all types of concrete, all over the world.

Darex *AEA* is conveniently available in distributor warehouse stocks throughout North and South America and in most foreign countries.

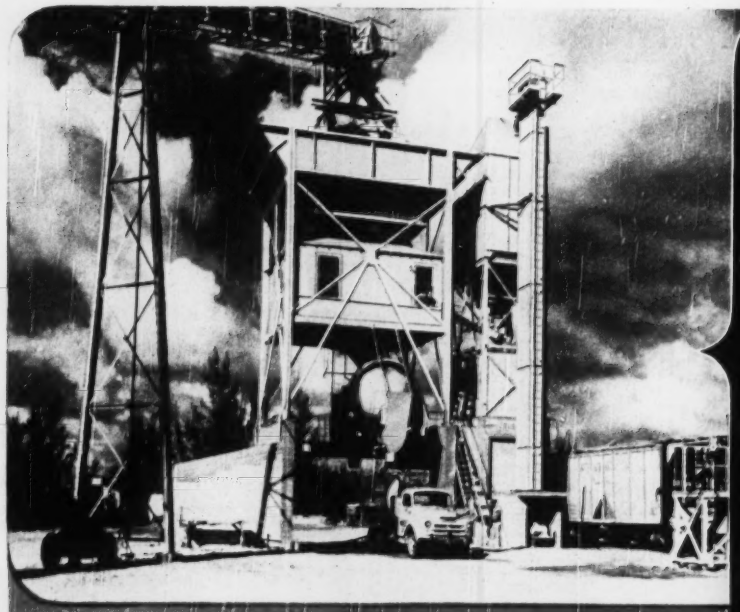
Cement Products Division

Dewey and Almy Chemical Company

Cambridge 40, Massachusetts

Chicago 38 Montreal 32

DAREX T.M. REG. U. S. PAT. OFF.



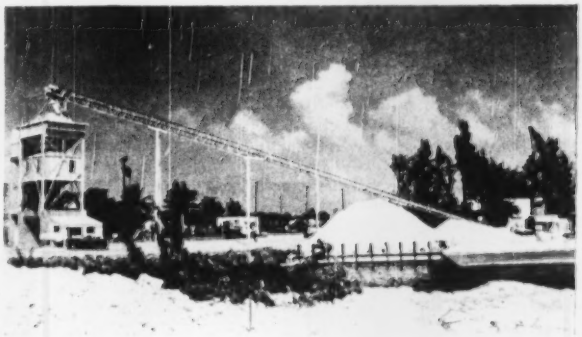
MODERN ERIE Wet and Dry Batch Concrete Plant

Plant includes Type CTB 160 Cu. Yds. 3-Compartment Aggre-Meter Plant connected to an M-3 492 Bbl. Single Compartment Cement Plant loaded from under-track hopper to 50 T.H.P. Elevator. This 3 yard wet and dry batch Central-Mix Plant produces up to 500 yards of concrete per day to supply the Miami market.

MAULE INDUSTRIES at MIAMI

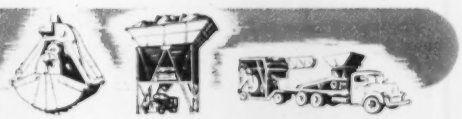
Produce better CONCRETE, faster and at LOWER COST . . .

PRECISION batching of high grade materials assures the high quality of specification concrete. The combination of efficient handling and accurate batching speeds concrete output and lowers cost. Consult Erie for thrifty storage and batching of cement, sand and aggregates.



Barges of sand and reduced oolitic limestone are unloaded by clamshell into hopper and belt conveyed to 3-Compartment Erie Bin.

ERIE
STEEL CONSTRUCTION COMPANY
702 GEIST ROAD • ERIE, PENNSYLVANIA



(Continued from page 47)

tion which has so much to offer in the way of advancement of international understanding through the medium of our own professional interests. We invite all interested engineers to join this important organization.

DAVID B. STEINMAN
Chairman, U. S. Council,
International Association for Bridge and Structural Engineering
New York, N. Y.

Water Pollution Control

SIR: Excerpt from editorial in ENGINEERING NEWS-RECORD of March 23, 1950, page 123, is quoted as follows: "The position of the U. S. Public Health Service in water pollution control remains to be clarified. Concern is being expressed in responsible quarters about its relation to state agencies, its duties and authorities. Some officials fear growth of a tremendous federal staff, question the value of ten river-basin organizations to deal with local problems already well understood by state authorities and suggest that state's rights may eventually be undermined."

In view of my designation by the President as the state representative on the Water Pollution Control Advisory Board, I beg to advise that I keep constantly in mind the dual form of government to which we all subscribe, and the importance of limiting the power of the federal government to those activities specifically stated in the Constitution and such appurtenant powers as are essential to implement the powers specifically granted. In my activity on the board I have observed that to date the Public Health Service has been particularly alert to secure state's rights and has been agreeable to relinquish jurisdiction and be bound by compacts covering interstate waters.

The establishment of the basin engineers offices at the present time is essential to enable the federal government to prepare a well-integrated and workable plan of pollution abatement, which will be properly correlated with other activities of the federal government covering conservation, water power development, flood control and wildlife. This undertaking is a proper one for the Public Health Service, was beyond capacity in 1947, and can best be accomplished by basin engineers. So long as this need exists I consider it proper to support the basin engineer organizations, and it is my intention to recommend against their continuance at it appears at a later date that there is a duplication of effort.

THOMAS A. BUTRICAN,
Boston, Mass.

If you do big construction you need this

Price Only $400
Complete with Tripod
With "A" Standard
and Compass — $425.00
F. O. B. Factory

The David White Western Precise Preliminary Transit gives you wide Versatility for Engineering and Surveying

WHY do you need this instrument? Because, no other instrument gives you the precision, the easy, fast working facilities for a variety of engineering and survey work *all in one unit.*

Telescope 9-1/4" long, dust and dirt free internal focusing — coated optics — erecting eyepiece and a magnifying power of 20 diameters. Horizontal Limb 5-5/16" Dia. with 1 Double Vernier Reading to single minutes. Vertical Circle 4" Dia. with guard. It can be used equally well on long distance or close work.

If you re in the market for a new preliminary precise transit, investigate the David White Model No. 7064-U illustrated above. Compare its many features *and its price* to all others. You'll like what you find out! See our nearest dealer or write direct. Free Bulletin No. 1050 will give you complete details on this and David White's complete line of fine engineering instruments. David White Co., 315 W. Court St., Milwaukee 12, Wisconsin.

DAVID WHITE COMPANY

We offer complete, prompt repair service on all makes of instruments — levels, transits, theodolites, etc.

Business methods that make home building more profitable

YOU'LL save yourself many a headache and many a dollar if you let this new book be your guide. Designed specifically to meet the needs of the small home builder, it gives you the business "know how" needed to make a profit with minimum risk to your money . . . a practical understanding of economic factors that determine if there is a market for your product . . . and the benefit of production knowledge based upon the experience of other builders. Here are practical, usable facts, not theory. Reflecting the experience of experts in the field, it tells you, in simple terms, all you need to know about the *business* of home building, showing you how to *minimize business errors* and increase your chances for success.

Edited by B. KENNETH JOHNSTONE, Carnegie Institute of Technology, and CHARLES E. JOERN, Wm. Joern & Sons, Realtor and Builder. Contributed to by a group of 12 authorities in the field.

JUST PUBLISHED!

289 pages, 5½ x 8, illustrated, $4.00

IN step-by-step fashion, this book discusses the value, purchase and development of land—the requirements and sources of working capital—and the financial problems associated with the production and purchase of houses. It points out a number of common legal pitfalls, shows you how to avoid them, discusses the ways of achieving financial security, etc. The *small* builder—the man whose ambition and aggressiveness have led him to make the jump from skilled craftsman to builder—will find this information on the *business* side of home building a practical supplement to his knowledge of the *craft*.

Shows how to:
- prepare a project-site map
- adopt a time schedule
- figure a job budget
- estimate operating costs
- set up an accounting system
- sell the finished building
- etc., etc.

SEE THIS BOOK 10 DAYS FREE

McGRAW-HILL

McGraw-Hill Book Co., Inc.,
330 W. 42nd St., New York 18

Send me Johnstone and Joern's THE BUSINESS OF HOME BUILDING for 10 days' examination on approval. In 10 days I will remit $4.00, plus few cents for delivery, or return book postpaid. (We pay for delivery if you remit with this coupon; same return privilege.)

Name .....
Address .....
City ..... Zone ..... State .....
Company .....
Position ..... NR 4 27 50

This offer applies to U. S. only

FIELD AND OFFICE

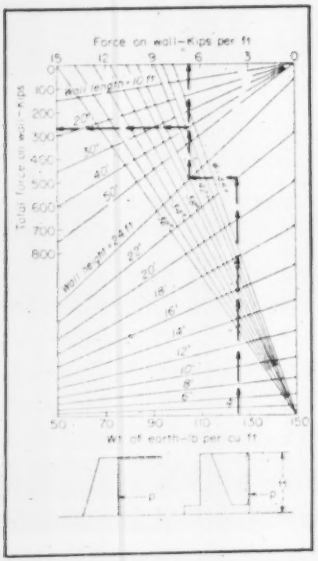


FIG. 1. FORCES against walls are given in the chart for level fills.

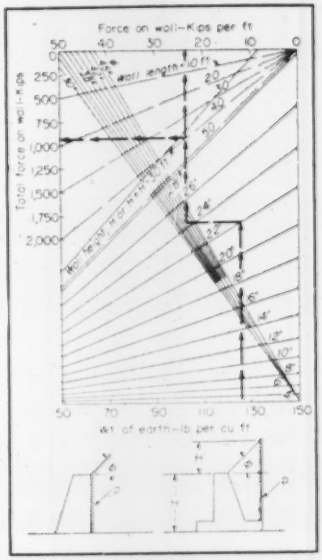


FIG. 2. SLOPING FILLS produce forces given by this chart.

Charts Give Loads Against Retaining Walls

The three charts presented here speed retaining wall design and checking. Based on Rankine's equations for each wall type, they eliminate cumbersome juggling of square and trigonometric functions on the slide rule in the computation of horizontal loads.

• Example 1—A 22-ft. high vertical retaining wall is to be designed for moist sand fill, the top of which is level with the top of the wall. Determine the force on the wall per linear foot of length and the total force on a 40-ft. long wall.

Inspection shows that Fig. 1 is suitable for this case. The chart is entered at the bottom with an assumed average density of 126 lb per cu ft for moist sand. This value is projected vertically to the 22 ft wall-height curve, across horizontally to 40 deg—the angle of repose of moist sand—and then vertically to the 40 ft wall-length curve. At the top of the chart 5,800 lb per ft is read, and at the left, the total force is found—272,000 lb.

• Example 2—For the same conditions as in Example 1, determine the earth force per foot of length and the total force on the wall for a fill with a sloping face.

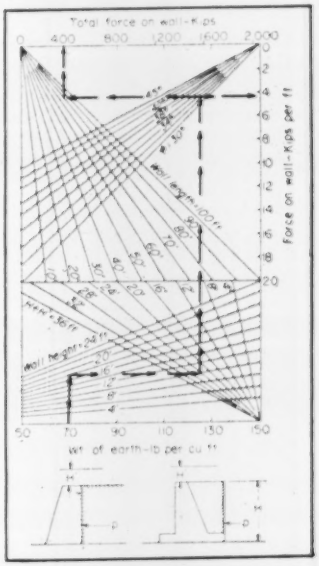
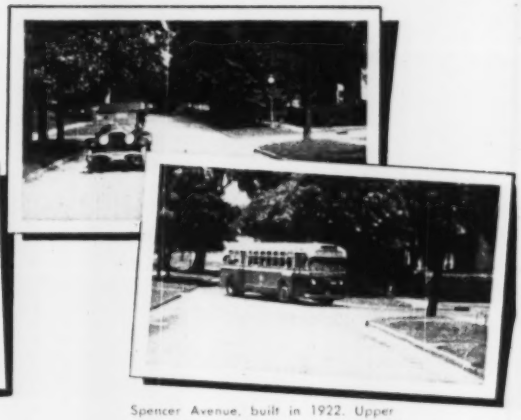


FIG. 3. SURCHARGE PRESSURES are accounted for in this chart.

Fig. 2 is used in the same manner as Fig. 1 in Example 1. The force per ft is found to be 23,500 lb and for the

(Continued on page 52)

West 43rd Street, built in 1924. Upper photo taken in 1927, lower photo in 1949



Spencer Avenue, built in 1922. Upper photo taken in 1923, lower photo in 1949

Here today – *and still here tomorrow*

that's the story of Indiana's *CONCRETE* streets

DURING THE 1920's Indianapolis paved the four concrete streets illustrated here. Having given a generation of dependable, ***low-annual-cost*** service, they are still in excellent condition today and good for many more years.

Outstanding service records like these are typical of concrete streets all over the country. With concrete it's a case of "here today—*and still here tomorrow*."

Correctly designed concrete pavement has the strength and stamina to render long years of uninterrupted, all-weather service. It stands up under the continuous impact of traffic regardless of blistering summer sun and heaving winter frosts. Today air-entrained concrete provides even greater built-in durability by eliminating scaling.

Concrete also is the safety pavement. In wet or dry weather concrete's gritty texture affords uniformly high skid resistance. At night concrete's light color reflects more light than other pavements, thus improving visibility and reducing accidents.

Concrete pavement is economical too. For all but lighter traffic it usually costs less to build than other pavements of equal load-carrying capacity. It costs far less to maintain and it lasts much longer. All that adds up to ***low annual cost***, the true measure of pavement economy. And concrete's high light reflectance cuts street lighting costs as much as 50%.

For more information about durable, ***low-annual-cost*** concrete pavement write for a free copy of "*Concrete Pavement Design*." Distributed only in the U. S. and Canada.

Arlington Avenue, built in 1929. Upper photo taken in 1929, lower photo in 1949

Winthrop Avenue, built in 1929. Upper photo taken in 1929, lower photo in 1949

PORTLAND CEMENT ASSOCIATION

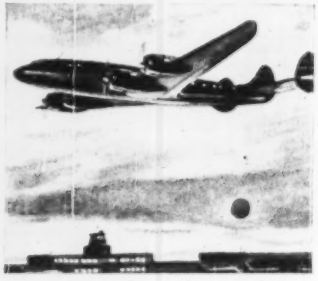
DEPT. 4d-17, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

Atom pile by-products "fly" to help medical research

Radioisotopes were needed by a Boston hospital for patient treatment. Lead-shielded box of radioactive iodine (weight, 35 lbs.) picked up by Air Express in Knoxville, Tenn., at 11 A.M., delivered 7:15 P.M. Charge, $8.60. Hospitals, like all business, use Air Express regularly to get supplies from anywhere in hours.

It's easier and more convenient to use the *world's fastest* shipping service. When shipments are ready, just phone for pick-up. Special door-to-door service included in the low rates.



Shipments *keep moving.* Air Express goes on every Scheduled Airline flight. Frequent schedules. Use dependable, experienced Air Express—keep your business rolling at a profitable clip.

Only Air Express gives you all these advantages

World's fastest shipping service.
Special door-to-door service at no extra cost.
One-carrier responsibility all the way.
1150 cities served direct by air, air-rail to 18,000 off-airline offices.
Experienced Air Express has handled over 25 million shipments.

Because of these advantages, regular use of Air Express pays. It's your best air shipping buy. For fastest shipping action, phone Air Express Division, Railway Express Agency. (Many low commodity rates in effect. Investigate.)

AIR EXPRESS
GETS THERE FIRST
AIR EXPRESS

Rates include pick-up and delivery door to door in all principal towns and cities

A service of
Railway Express Agency and the
SCHEDULED AIRLINES of the U.S.

(Continued from page 50)

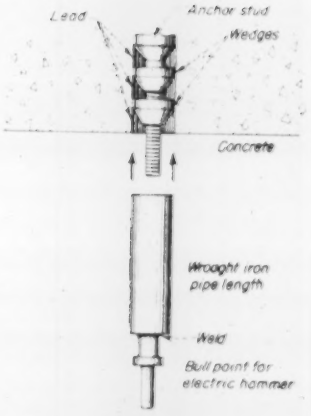
entire wall, 940,000 lb. If a leaning wall had been used, the solution would be obtained by projecting to the proper value of $H + H'$, instead of H.

Note that in both Fig. 1 and 2, the total force on the wall for lengths exceeding plotted values can be obtained by solving for some smaller length and multiplying the result by a suitable factor. Thus, for a 100-ft wall, solve for a 10-ft wall and multiply the result by 10. Of course, force per foot remains constant, regardless of wall length.

When the earth does not extend above the retaining wall top but supports an external load such as railroad tracks or a building, it is common practice to convert the load to an equivalent height of earth before solving. This is done by dividing the pressure of the upper load, in psf, by the earth density, in lb per cu ft. The result is H', or equivalent surcharge. Fig. 3 is suitable for such problems.

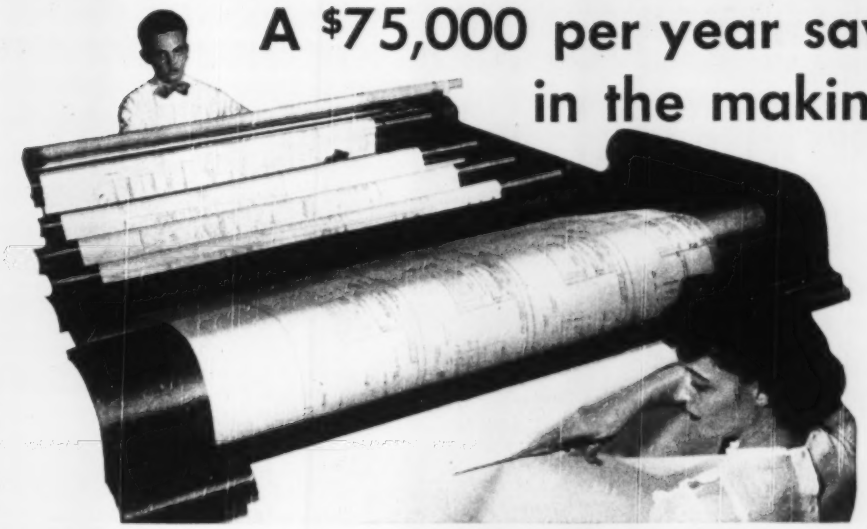
• Example 3: What earth forces act on an 18-ft high, 80-ft long vertical retaining wall when 70 lb per cu ft soil with a 33.5-deg repose is used for fill and equivalent surcharge is 6 ft?

Fig. 3 is entered at 70 lb per cu ft. This value is projected vertically to the wall height, horizontally to $H + H'$ = 24 ft, and then vertically to 33.5 deg. At the right, 4,400 lb per ft is read. Projecting horizontally to the 80-ft wall-length curve and then vertically again gives 352,000 lb as the total force.

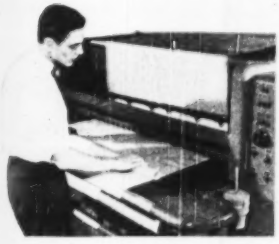


POWER PACKING CINCH ANCHORS—When driving lead cinches, especially on overhead work, a short section of pipe welded to a bull point will not only pack the lead in better but will speed up the whole operation.—Joseph Camester, Portsmouth, N. H.

A $75,000 per year saving in the making . . .



Streaming off this continuous processing machine at the Ford Motor Company . . . are Kodagraph Autopositive prints—positive photographic intermediates of original drawings. *The answer to a $75,000 per year redrafting headache!*



Before . . . Ford's valuable original drawings had a short life . . . had to do double duty in the drafting room and in heavy print production. In the latter operation, they were exposed to machine wear and tear, constant handling. Soon they lost their detail . . . produced illegible blueprints . . . which meant that new drawings had to be ordered from the drafting room.

Now . . . Ford's originals are filed away in the drafting room after Kodagraph Autopositive intermediates are made—available for reference and revisions only! All blueprints are produced from the "Autopositives," whose photographic black lines will not smudge or lose opacity . . . assuring highly legible prints even after hundreds of "run throughs." As a result of this simple change in routine, *redrafting costs are reduced by an estimated $75,000 per year . . . while the output of creative drafting is increased.* And print production is simplified, too . . . for Kodagraph Autopositives are not only longer-lasting . . . but can be printed at uniform, practical machine speeds.

Kodagraph Autopositive Paper

"The Big New Plus" in engineering drawing reproduction

You, too, can cut your drafting costs, get improved legibility, and simplify print production . . . by reproducing your drawings on this new, low-cost photographic intermediate paper.

You can turn out "Autopositives" quickly, economically . . . with your present print-making equipment and standard photographic processing. Or else you can order them from your local blueprinter. *It will pay you to get all the facts soon!*

MAIL COUPON FOR FREE BOOKLET

EASTMAN KODAK COMPANY
Industrial Photographic Division
Rochester 4, N. Y.

GENTLEMEN: Please send me a copy of your illustrated booklet giving all the facts on Kodagraph Autopositive Paper.

NAME _____ POSITION _____

COMPANY _____ STREET _____

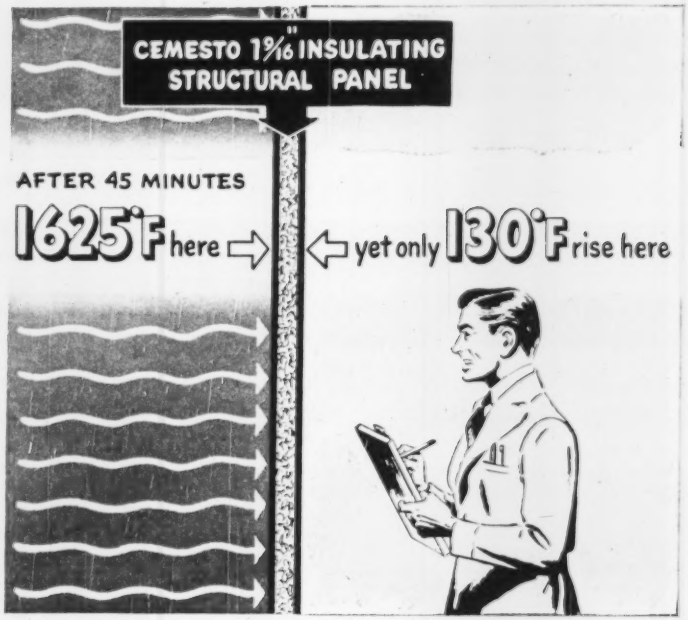
CITY _____ STATE _____

07

Kodak
TRADE-MARK

CEMESTO* PROVES AMAZING INSULATION VALUE IN STARTLING "TRIAL BY HEAT"

Dramatic tests demonstrate the remarkable insulating efficiency of the World's Most Versatile Building Material!



In recent tests made by an independent research laboratory, panels of Cemesto were put through a rigorous "trial by heat." Each panel was first set up as an enclosing wall of a special testing oven. One side of the Cemesto Panel faced the inside of the oven, and the other side faced out (see drawing). The enclosed side was then subjected to intense heat for a period of 45 minutes.

At the end of this time, when the temperature on the side exposed to heat had reached a torrid 1625 F., *the other side registered a heat rise of only 130 F.!* Dramatic proof, indeed, of the unusual insulation value of Cemesto Insulating Structural Panels!

Cemesto Panels offer many unique advantages

What do these tests mean to you? They mean that when you build with Cemesto Panels, you do more than save time and money on the construction of permanent roof decks, curtain walls and partitions. *You also insulate effectively without materially increasing the cost!* The result: buildings that are cooler and more economical to air condition in summer, warmer and thriftier to heat in winter; more pleasant, more healthful working conditions for occupants . . . greater production and fewer accidents through improved employee efficiency . . . increased client satisfaction!

The secrets of Cemesto's versatility

Strong, rigid, pre-formed Cemesto Panels are made of Celotex cane fibre insulation board to which cement-asbestos facing is bonded on both sides by a moistureproof bituminous adhesive. They are lighter than most building materials, yet have remarkable structural strength. Can be worked with ordinary hand or power tools on the job, or pre-cut to specifications at the mill for faster application. Quickly and easily applied to either wood or metal framing.

Cemesto Panels resist fire, weather and wear—*they are a "life-of-the-building" material!* Their smooth, hard, noncombustible, stone-grey surface has good light reflection value, and provides both exterior and interior finish. Unless required for decorative purposes, Cemesto Panels never need painting or maintenance. And their cane fibre core is protected against fungus, dry rot and termites by the exclusive patented Ferox* Process.

Cemesto gives your ingenuity free rein

Adaptable for buildings of all types from modest homes to giant industrial plants, Cemesto Panels offer many interesting possibilities for important economies in design, construction and maintenance. Their stability and permanence have been proved by almost 20 years of varied use in all climates, all over the world. Discover how this modern marvel of building materials can help *you* build better, faster and at lower cost. Write today for new technical data booklet, which includes latest design and application recommendations. The Celotex Corporation, Chicago 3, Illinois.

*REG. U. S. PAT. OFF.

CEMESTO

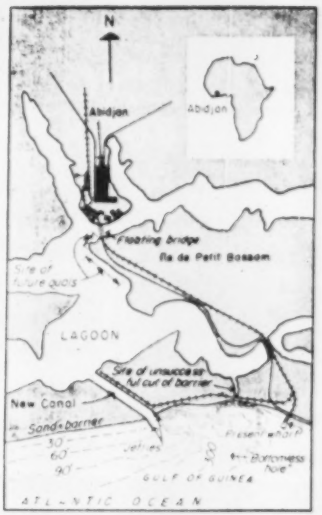
REG. U. S. PAT. OFF.

INSULATING STRUCTURAL PANELS

THE CELOTEX CORPORATION • CHICAGO 3, ILLINOIS

DEVELOPMENTS ABROAD

Marshall Plan funds build port for French West Africa colony



Improvement of the port of Abidjan, on French West Africa's Ivory Coast—a construction project of some importance and interest—is also a key in the plan to build up this part of the world as an economic barrier to Russian expansion. A State Department statement some weeks ago disclosed that enterprises involving up to $3 billion over the next ten years have been discussed among the U. S. and the four major African colonial powers—Great Britain, France, Belgium and Portugal. At about the same time, ECA called attention to Abidjan as the African "port of the future." It also announced that for this work and other development in French West Africa, $31,000,000 in American goods and machinery had been allocated.

• **First stage done this year**—First stage of the work at Abidjan—opening a canal through a sand barrier beach so that ocean going vessels can enter the protected lagoon on which the town is located—will be completed this summer. It has required the dredging of 23,000,000 cu yd of sand, the placing of 1,000,000 tons of stone in jetties and the laying of 450,000 sq yd of bamboo fascine mattress. Planned to start by the end of the year, according to the French Colonial Office, is work on the quays on the island opposite the town. One, running in a northeast-southwest direction, will be about 1,000 ft long and will be used for the export of timber. The other, 7,000 ft long in a northwest-southeast direction, will handle exports of coffee, cocoa and bananas. Port volume in 1938, both exports and imports, was 345,000 tons; it is planned to equip it to handle 850,000 tons annually.

Attempts to pierce the sand barrier, so that ships would not have to anchor offshore in the Gulf of Guinea and lighter goods ashore, date back to the founding of the town in 1900 when the railroad was built into the interior.

• **Earlier canals failed**—In 1906, an opening was made at the narrowest point, but rapidly filled with sand under the action of waves and the littoral currents. Another try in 1933 was likewise unsuccessful. In both instances the cut was made opposite a great "bottomless hole" in the gulf, which precluded the building of protecting jetties. Moreover, it was oriented so that the waves entered it directly, and it was too small in cross section to provide sufficient water volume to keep it free of sand. Hydraulic model studies showed the way to a practicable design that took care of all these shortcomings.

The new cut or canal is shown on the above map. It is nearly 9,000 ft long; it is 1,200 ft wide at the water surface and 650 ft at a depth of 50 ft. Its 4:1 slope banks are protected by weighted fascine mattresses, and similar mattresses are used at the entrance to form a sill. At the entrance, the canal is narrowed to about 800 ft and protected by jetties on either side. The west jetty, 1,700 ft long and 230 ft wide at the base, is essential to give protection from the ocean swells and the littoral currents. The east jetty is only 600 ft long, but is shaped to guide the waves away from the entrance.

Pictured below is construction work on the Abidjan-Niger R.R., which, with the new port, will do much toward economic development of West Africa.

FOR NAIROBI'S WATER SUPPLY—This concrete gravity construction is for the Ruiru Dam 17 miles from Nairobi, Kenya, East Africa. The dam is one of two being built to provide additional water for the rapidly growing city. It is designed to impound 700,000,000 gal. It will be 60 ft high. The work is being done by W. & C. French, Ltd., of Buckhurst Hill, Essex, England. (Eastern Publishers Service Photo.)

WEST AFRICAN RAILROAD—The Marshall Plan has allocated almost $31,000,000 in goods and equipment for the development of French West Africa, an area more than half as large as the United States. Above is construction work on the Abidjan-Niger R.R. between Bobo-Dioulasso and Ouagadoongou. Steel ties are used as termites, which abound in that district, won destroy wooden ones.

When you're running into piles of difficulty, here's the extractor you always can depend on. It has the extra power, the extra ruggedness, speed and efficiency to extract any type of pile and to pull you through a difficult project on schedule. It's really a time saver. And remember — time saved is money saved.

The Vulcan Pile Extractor is simple in construction and easy to operate. It is built in three sizes for all extracting purposes—No. 200 for smaller work, No. 400 for heavier jobs and No. 800 for really tough jobs.

Write for complete details on the pile extractor that has proved itself in the field since 1927.

VULCAN IRON WORKS
Since 1852
331 North Bell Avenue
Chicago 12 ---Illinois

MUNICIPAL AFFAIRS

A 22-mile expressway proposed for Richmond

A comprehensive expressway proposal is now being considered by Richmond, Va. The new plan, devised by Ladislas Segoe, planning consultant employed by the City Planning Commission, is for a 22 mile express highway system to cost at most $46,475,000 and take many years to complete.

The plan differs somewhat from one prepared by the State Highway Department four years ago and on which no positive action has been taken.

In brief, the new plan would take the expressway through the city from north to south about on the same lines as the highway department plan of 1946, including a Lee Bridge crossing of the James River.

The east-west route, starting from Route 250 on the west and going across town to Route 60 on the east, also follows the state plan in general.

However, a radical difference is a West End interceptor loop west of Belt Line, to catch traffic coming downtown from the far West End, and carry it around, rather than through, the heavily-populated near West End residential area.

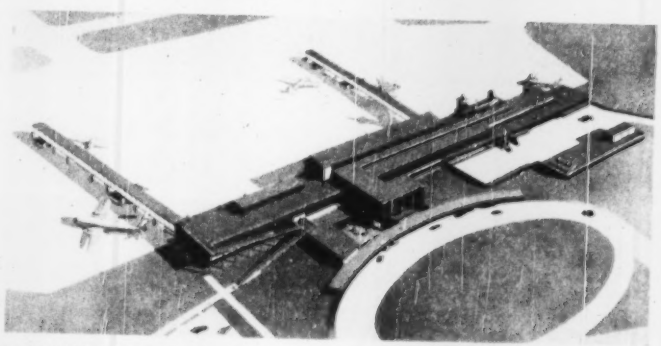
Another new idea is a plan for a new Ninth Street bridge to feed traffic directly from the South Side into the central business district. A third innovation is to take the north expressway approach to Lee Bridge along Madison Street instead of along Belvidere next to Monroe Park.

City Manager Reeder says that the city's share of the total cost should run about 25 percent, or about $11,500,000. Under present arrangements, federal, state and local government would split right of way costs one-third each. The federal government would pay one half of construction costs and the state and city 25 percent each.

It is said that there is likely to be considerable discussion by all groups in the city before any definite action is taken on the expressway proposal, which has proponents and opponents. The Richmond **News Leader**, how-

(*Continued on page 61*)

MILWAUKEE SPORTS ARENA—This view shows the nearly-completed $1,500,000 sports arena for Milwaukee, Wis., scheduled to open this month. It will accommodate 11,000 spectators.—Wide World photo.



PHILADELPHIA AIRPORT—Above is a reproduction of the architects' drawing for the $5,000,000 terminal building to be built at the Philadelphia International Airport. Architects are Carroll Grisdale & Van Alen. Bids are being received by the Philadelphia Department of Public Works.

TRUSCON
MARK OF MERIT
PRODUCTS

TRUSCON *Double-Hung* STEEL WINDOWS SERIES 138

doubly *durable...*

A Truscon Series 138 Double Hung Steel Window in G. W. McIntosh residence, Omaha, Nebraska. Steele, Sandham & Steele, Architects.

Truscon Series 138 Double Hung Steel Windows in Garth Woods Apartments, Scarsdale, New York. Geo. L. Pelham, Architect. Frank Morell Construction Co. Inc., Contractors.

doubly *economical...*

Truscon specialized formed-steel frame and sash construction builds high strength into these steel windows of pleasing design. This form of construction assures structural rigidity, and freedom from depreciation. Truscon Double-Hung Steel Windows have fingertip control with motor type spring balances, complete factory weatherstripping in stainless steel, solid bronze lever lift handles and sweep lock. And, of course, there are the traditional Truscon Steel Window features of no warping, sagging, binding or sticking. No rotting and necessary replacement. For residential and commercial use, in a wide range of types and sizes. Free illustrated literature on Truscon Series 138 Steel Windows on request.

FREE Book on Truscon Steel Windows. Write for it. The Truscon Steel Company Manufactures a Complete Line of Residential Double Hung Windows . . . Residential Casements . . . Security and Basement Windows . . . Screens and Storm Sash . . . Metal Lath Products . . . Industrial Steel Doors . . . Coal Chute Doors . . . Steel Lintels . . . Concrete Bars . . . Welded Steel Fabric.

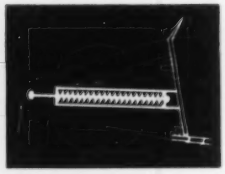
TRUSCON STEEL COMPANY
Subsidiary of Republic Steel Corporation
YOUNGSTOWN 1, OHIO
Warehouses and sales offices in principal cities

Entirely New GarWood 625

LARGE CAPACITY

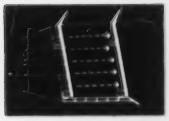
Heaped load (1:1 slope)	24.5 cu yd
Struck load (line of plate)	13.2 cu yd

Positive Ejector Gate Return



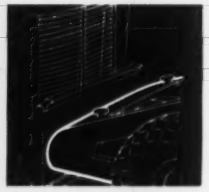
Six heavy duty springs (compressed during ejection) return gate to digging position when cable is released.

Positive Forced Ejection

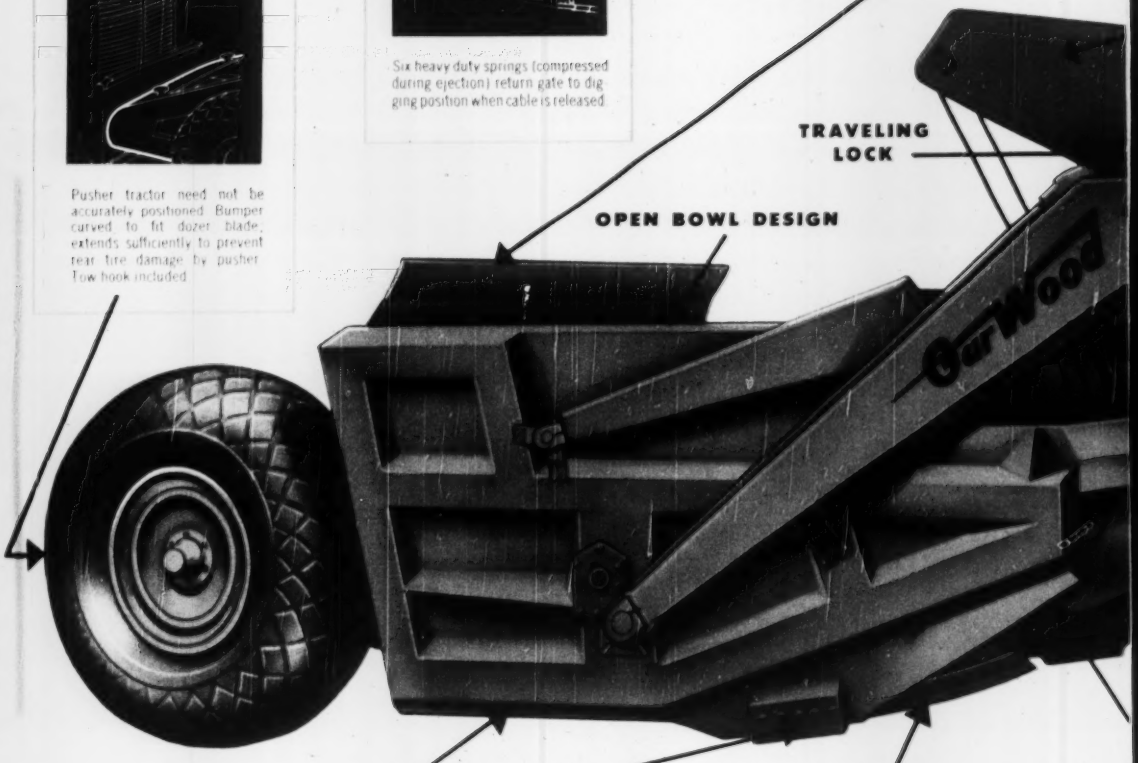


Ejector gate wipes bowl sides and bottom clean as it rolls forward to positively eject all material. Rate of ejection is controlled.

Wide Pusher Bumper



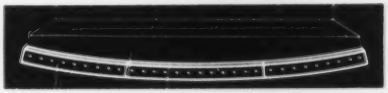
Pusher tractor need not be accurately positioned. Bumper curved to fit dozer blade, extends sufficiently to prevent rear tire damage by pusher. Tow hook included.



Double Bottom Integral With Bowl

Maximum strength and rigidity are provided by all welded construction of the double bottom with bowl sides and back.

Bowed 3-Piece Reversible Cutting Edge



For easier, faster digging and maximum economy. End sections interchangeable as well as reversible. Optional center extension cutting edge for hard digging.

ASK YOUR GAR WOOD—ALLIS-CHALMERS DEALER FOR A DEMONSTRATION

GAR WOOD GW INDUSTRIES

GAR WOOD INDUSTRIES, INC.

Findlay Division • Findlay, Ohio

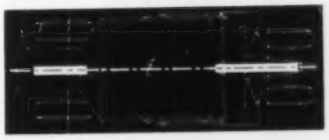
MANUFACTURERS OF GAR WOOD TRACTOR EQUIPMENT FOR ALLIS-CHALMERS INDUSTRIAL TRACTORS

AC

SCRAPER = New Low Costs Per Yard

All Sliding Sheave Blocks on Center-Line of Scraper

Simplified and improved reeving lengthens cable life. To keep out dirt, sheaves are completely enclosed in boxes with hinged tops for easy accessibility when servicing.



STURDY YOKE

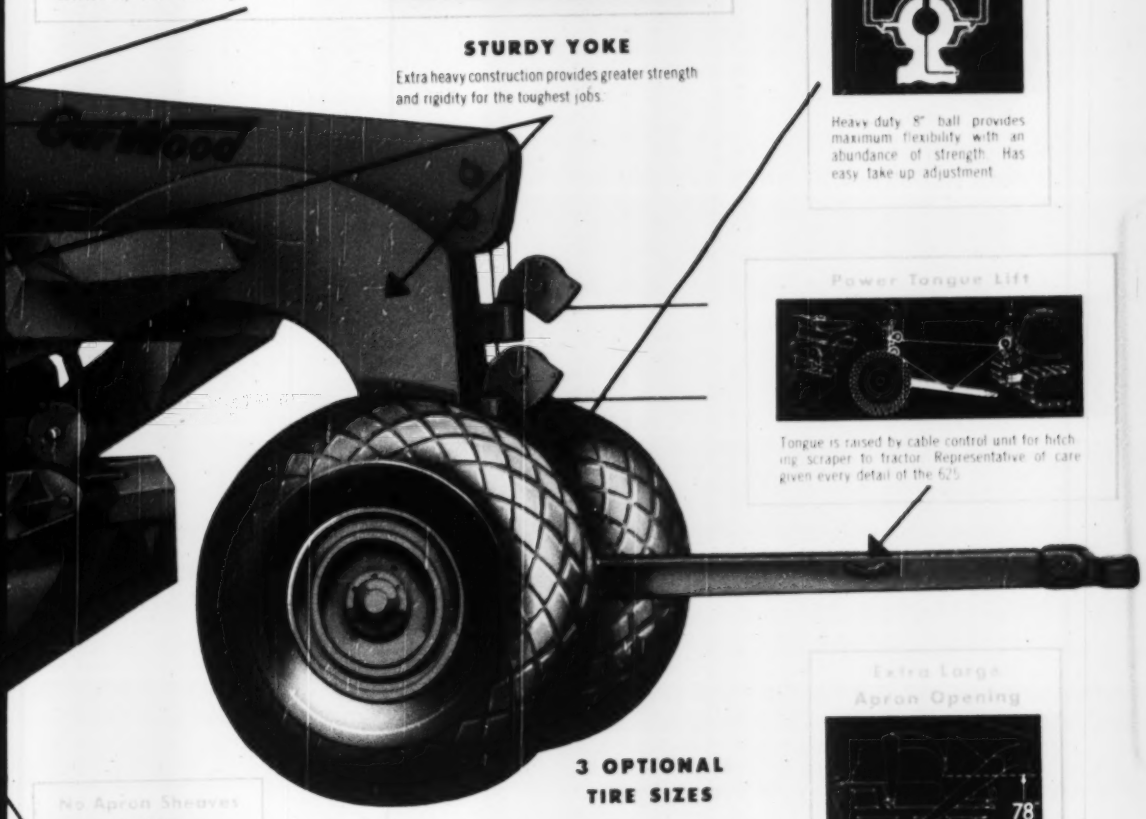
Extra heavy construction provides greater strength and rigidity for the toughest jobs.

Rugged Ball-and-Socket Fifth Wheel

Heavy duty 8" ball provides maximum flexibility with an abundance of strength. Has easy take up adjustment.

Power Tongue Lift

Tongue is raised by cable control unit for hitching scraper to tractor. Representative of care given every detail of the 625.



3 OPTIONAL TIRE SIZES

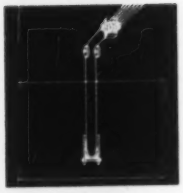
EASIER TO SERVICE

All parts requiring service are quickly and easily accessible. Need for service has been reduced to a minimum.

Extra Large Apron Opening

78" apron opening with scraper in carry position is ample for positive ejection of sticky materials and large rocks.

No Apron Sheaves In Dirt



Twin cable lines run from traveling sheave block to the apron equalizing hook. No sheaves in dirt.

Exceptionally Rugged Construction Throughout

SEE YOUR GAR WOOD—ALLIS-CHALMERS DEALER OR MAIL THIS COUPON

GAR WOOD INDUSTRIES, INC.
Findlay Division, Dept. 022-3
Findlay, Ohio

Please send me bulletin describing the new Gar Wood 625 Scraper.

Name .....

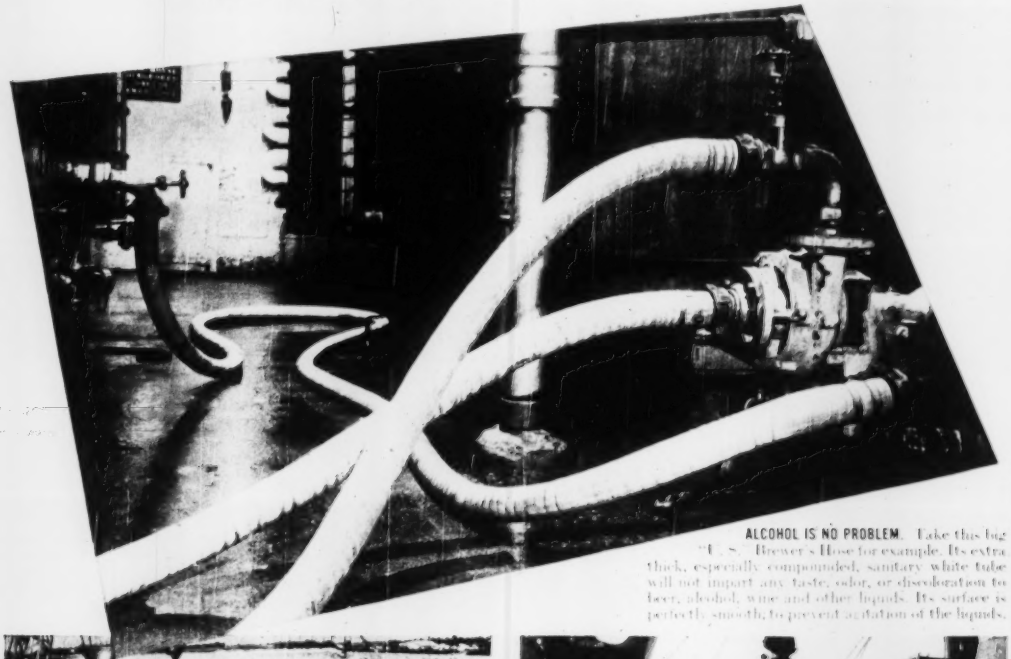
Company .....

Address .....

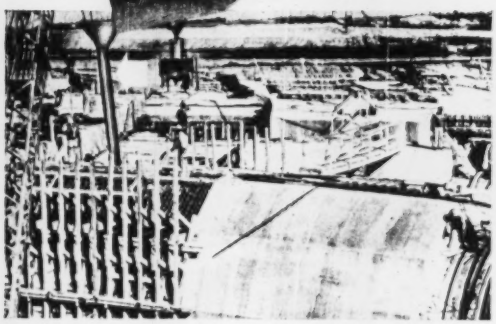
FORM P-625-3 4-50 COPYRIGHT 1950 LITHO IN USA

TODAY'S HOSE CAN SWALLOW ANYTHING!

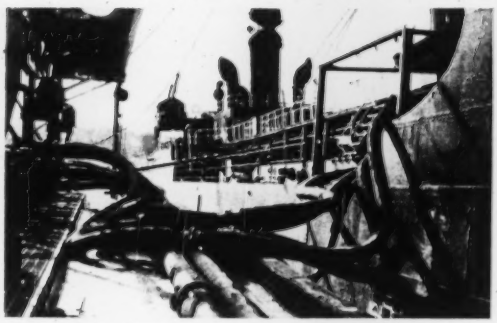
U. S. RUBBER'S LINE OF FLEXIBLE CARRIERS INCLUDES PRODUCTS THAT CAN HANDLE PRACTICALLY ANY DESTRUCTIVE LIQUID KNOWN



ALCOHOL IS NO PROBLEM. Take this big "U. S." Brewer's Hose for example. Its extra thick, especially compounded, sanitary white tube will not impart any taste, odor, or discoloration to beer, alcohol, wine and other liquids. Its surface is perfectly smooth, to prevent agitation of the liquids.



ON THIS BIG DAM in the Middle West contractors used U. S. Elephant Trunk Hose for dropping concrete speedily and efficiently into tight forms and inaccessible places. Since the hose is flexible, it can be maneuvered and bolted to spots where concrete could not be dropped directly.



RESISTANCE TO PETROLEUM OILS is built into U. S. Oil Hose for suction or discharge work at refineries, terminals, and loading or unloading tankers or barges. The special U. S. constructions combine adequate pressure resistance and durability while allowing required flexibility.

United States Rubber Company makes hose that resists powerful acids, paint and chemicals of many kinds. No matter what your hose problem may be, you can be sure that "U. S." technicians either already have the right answer, or will obtain it for you. Write

A PRODUCT OF

U.S.RUBBER
SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

ever, has come out strongly for an early decision in the matter. Public hearings are being held this month. At the first hearing on April 13, considerable opposition was expressed and decision on the matter was postponed.

Municipal Briefs

Planning for Wilmington—One of the first objectives of the New City Planning Committee of Wilmington, Del., is the drawing up of a master plan to direct future growth of the city. Specific aims are to improve approaches to the southern part of the city; better ing sub-standard areas to make them revenue producers; enlargement of the municipal building; anti-smoke work; study of likely neighborhoods for secondary business centers; and extension the city boundaries.

New bridges for Dallas—The city and county of Dallas, Tex., are planning two large new bridges over the Trinity River to be built with money recently voted in a $22,500,000 county-city bond issue. One of the bridges will restore the broken traffic link between Hampton and Inwood Roads. The other will replace the wholly inadequate Fourth Avenue bridge which carries a heavy traffic between Dallas and South Oak Cliff. There are five other crossings of the Trinity within the city and all carry heavy traffic.

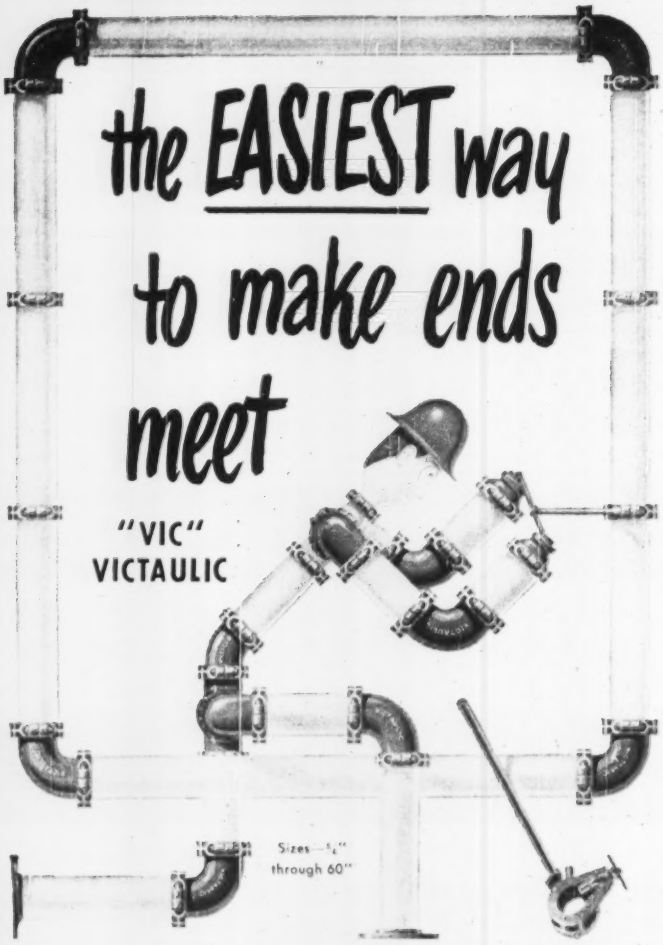
Long view for Akron's schools—Public school buildings of Akron, Ohio, need a $20,000,000 overhauling to provide adequate facilities for children in the next 50 years, according to an 18-month study of the school system by the Bureau of Educational Research of Ohio State University. Additions and new schools would cost $18,418,582, and remodeling would cost $1,675,500.

Rehabilitation program—A $5,155,000 program of rehabilitation and construction of bridges, streets and public buildings in Buffalo, N. Y., was outlined for the capital expenditures committee by Frederick W. Crane, commissioner of public works. The Crane program included $1,800,000 for repaving and resurfacing streets, and $1,750,000 for repair and construction of bridges. Mr. Crane said that $900,000 allocated for construction of viaducts in the present fiscal year has not been spent because plans and specifications are not ready.

Boston Common again—The latest word is that, unless unexpected obstacles are encountered, work on the $10,000,000 garage under the famous Common of Boston, Mass., will get under way in the coming summer.

Write for desk size sample and NEW Grating Catalog containing photographs of actual installations and valuable engineering data.

The Weldforged GRATING DIVISION
of KERRIGAN IRON WORKS, INC., NASHVILLE, TENNESSEE
GENERAL SALES OFFICE, 274 MADISON AVE., N. Y. C.



Even on the toughest piping jobs VICTAULIC Couplings, Victaulic Full-Flow Elbows, Tees and other Fittings will make joining those pipe ends quick, easy, and economical—assure you a leak-tight piping job!

You save every way when you *join up* with "Vic"—a simple two-bolt design gives quick, easy hookups, a standard T-Wrench is the only tool needed for connections . . . joints are positive-locked, leak-proof, will stand up under extreme pressure, vacuum, or strain conditions.

GROOVING THOSE PIPE ENDS is a cinch the Victaulic Way . . . "Vic-Groover" grooves 'em automatically in half the time of a conventional pipe threader!

The COMPLETE Victaulic Line *can't be beat* for efficient, dependable, on-the-job piping construction. Yes Sir! Victaulic IS the Easiest Way to Make Ends Meet. JOIN UP WITH "VIC"—make your next piping job ALL VICTAULIC. Write today for these two:

Victaulic Catalog and Engineering Manual No. 44 . . . *"Vic-Groover" Catalog No. VG-47.*

VICTAULIC COMPANY OF AMERICA
30 Rockefeller Plaza, New York 20, N. Y.

Victaulic Inc., 727 W. 7th St., Los Angeles 14. Calif.
Victaulic Company of Canada, Ltd., 200 Bay Street, Toronto 1
For Export outside U.S. & Canada: PIPECO Couplings & Fittings; Pipe Couplings, Inc., 30 Rockefeller Plaza, New York 20, N.Y.

26TH VICTAULIC YEAR

The easiest way to make ends meet
VICTAULIC
PIPE COUPLINGS AND FITTINGS

Master plan for Lockport—A master plan for development of a 7.3-mile arterial route system for Lockport, N. Y., has been presented to that city and Niagara County by the N. Y. State Department of Public Works. Estimated to cost $2,871,000 at current prices, the proposed plan provides scientifically-designed highway facilities in Lockport and its environs to remedy traffic troubles that now threaten the economic future of the community. The city would have to pay about $104,000—one-half the cost of the required right of way. All other costs would be borne by the state.

Two disposal plants—Asheville, N. C., is planning a long-range program to expand its sewage disposal system at a cost estimated at $2,250,000, and to include construction of two disposal plants—one on each side of the French Broad River—and construction lines to carry sewage to the plants from the 36 outfalls in the city.

Wider streets—A plan to set new building lines so that wider streets may be developed in the uptown area of Atlanta, Ga., is being considered. The plan proposes no immediate widening work, but would provide that any new structures would be set back far enough to permit eventual changes.

New Trenton bridge—The Delaware River Joint Toll Bridge Commission will have to buy 190 properties for approaches to the proposed toll bridge across the Delaware River between Trenton, N. J., and Morrisville, Pa. For this purpose more than $2,000,000 has been advanced by a Philadelphia bank on bond anticipation notes.

Expressways—At least two other southern cities besides Richmond, Va., are considering very extensive express highway work. At Houston, Tex., between $20,000,000 and $30,000,000 worth of new urban expressways have been approved officially by the state highway department—subject to certain conditions. Houston will have to provide necessary right of way and other facilities. The new construction program will follow completion of the Gulf Freeway and the proposed new Highway 59 entry from the north. At Louisville, Ky., the Railroad Planning Commission is hastening to get before state and U.S. highway officials the preliminary draft of an $81,000,000 long-range program of expressways, grade-crossing eliminations, and centralized railroad facilities. It is an integration of all previous plans to eliminate the city's traffic headaches. Plans are being drafted by De Leuw, Cather & Co., Chicago.

MORE POWER *than ever!*
GREATER VALUE *than ever!*

Again in 1950, Chevrolet is the outstanding leader in the entire truck field! Chevrolet brings you more power —and more value—than ever before. *These 1950 P•L trucks are the most powerful trucks Chevrolet has ever built!*

Chevrolet—and only Chevrolet—leads the field in popularity, performance, payload and price. Chevrolet —and only Chevrolet—has earned the right and proved its right to leadership.

See your Chevrolet Dealer today. He sells a P•L truck for every trucking job. And every one gives you MORE POWER . . . GREATER VALUE . . . than ever!

CHEVROLET MOTOR DIVISION, *General Motors Corporation*
DETROIT 2, MICHIGAN

Out in front with all these PLus *Features:*

• TWO GREAT VALVE-IN-HEAD ENGINES: the New 105-h.p. Load-Master and the improved 92-h.p. Thrift-Master—to give you greater power per gallon, lower cost per load • THE NEW POWER-JET CARBURETOR: smoother, quicker acceleration response • DIAPHRAGM SPRING CLUTCH for easy action engagement • SYNCHRO-MESH TRANSMISSIONS for fast, smooth shifting • HYPOID REAR AXLES—5 times more durable than spiral bevel type • DOUBLE-ARTICULATED BRAKES—for complete driver control • WIDE-BASE WHEELS for increased tire mileage • ADVANCE-DESIGN STYLING with the "Cab that Breathes". • BALL-TYPE STEERING for easier handling • UNIT-DESIGN BODIES—precision built.

CHEVROLET
P•L
ADVANCE-DESIGN TRUCKS

P*opularity L*eaders

The public's overwhelming preference for Chevrolet trucks is proof of owner satisfaction earned through the years. Beyond question, Chevrolet P•L trucks are the nation's leading choice in the entire truck field.

P*erformance L*eaders

The new Chevrolet P•L trucks give you high pulling power over a wide range of usable road speeds—and on the straightaway, high acceleration to cut down total trip time.

P*ayload L*eaders

The rugged construction and all-around economy of Chevrolet P•L trucks cut operating and repair costs—let you deliver the goods with real reductions in cost per ton per mile.

P*rice L*eaders

From low selling price to high resale value, you're money ahead with Chevrolet trucks. Chevrolet's rock-bottom initial cost—outstandingly low cost of operation and upkeep—and high trade-in value—all add up to the lowest price for you.

CHEVROLET

HOW TO HANDLE ANY RIGGING JOB

• effectively
• safely

MEET today's problems in industrial and construction rigging with this complete handbook. Use it as your guide to safe and efficient rigging methods and techniques in transporting or handling heavy machinery or materials . . . in your everyday maintenance operations . . . in erecting or demolishing smaller size structures.

This book enables you to do the job quicker, safer, at lower cost. It shows how to determine the weight of a load, and describes equipment and techniques best suited to its transportation or hoisting. It explains applications, illustrates construction details, gives maintenance tips for all kinds of rigging equipment, shows how to use, inspect and maintain fiber and wire ropes, slings, scaffolds, fall lines, cranes and derricks, chain hoists, etc.

JUST OUT!

HANDBOOK OF RIGGING

By W. E. ROSSNAGEL

Safety Engineer, Consolidated Edison Co. of New York, Inc.

321 pages, 6 x 9, over 300 illustrations, $4.75

PACKED into the pages of this guide are proven methods that can help you perform your job with greatest safety to all concerned. The book includes simple formulas useful in the accurate calculation of beams and posts, etc. It provides a wealth of data on wire rope installations, and covers every step in rigging operations—from rigging a swinging scaffold and painting a steel stack . . . to using a hydraulic jack and operating a hoist. Reference codes, laws and standards are listed to help you ensure that there will be no violation of local laws, no deviation from safe practices.

Shows how to:
- lubricate wire rope
- rig a basket-hitch sling
- test planks for scaffolds
- operate a spur-geared hoist
- use a suspended scaffold on heavy repair jobs
- test a jack
- and many, many others

SEE THIS BOOK 10 DAYS FREE

McGRAW-HILL

McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18

Send me Rossnagel's HANDBOOK OF RIGGING for 10 days examination on approval. In 10 days I will remit $4.75 plus few cents for delivery, or return book postpaid. (We pay for delivery if you remit with this coupon; same return privilege.)

Name .....

Address .....

City ..... Zone ..... State .....

Company .....

Position ..... NR 4-27-50

This offer applies to U. S. only.

MEN AND JOBS

H. H. Morgan, vice-president and chief engineer of the Robert W. Hunt Co., engineers, Chicago, has, in addition, been appointed as general manager.

Kenneth P. Norrie and **L. C. Campbell**, consulting engineers of Spokane, Wash., have formed a partnership. Norrie obtained his master's degree from the University of Wisconsin in 1939, was an officer in the Seabees and worked on dam design and flood control studies with the Army Corps of Engineers before becoming assistant professor of civil engineer at Gonzaga University in Spokane. Campbell was with the Burns & McDonnell Engineering Co. and the Hinor Corp. before moving to Spokane, where he has been working with architects.

Francis Bennett has resigned as senior planner for the Columbus, Ohio, Plan Board, to be senior planner in Detroit, Mich.

W. H. Kyle, civil engineer, general manager of the central region, Canadian National Railways, has been appointed assistant vice-president, operation, at system headquarters, Montreal. He is a 1926 graduate of McGill University.

Bradford V. Bevier, Mansfield, Ohio, city sanitary engineer since 1947, has resigned.

Robert Drummond of Toronto, Ont., is the new president of the Canadian Construction Association, whose activities extend all over the dominion. He has been national vice-president of the organization, and also president of the Toronto Builders' Exchange. Of Scottish birth, Mr. Drummond went to Canada as a boy. At the age of 25 he was in charge of administration of construction of the Canadian Bank of Commerce building in Toronto, the tallest skyscraper in British Commonwealth.

Roy E. O'Mara, vice-president of the Allegheny Asphalt & Paving Co., Inc., of Pittsburgh, Pa., has been elected president of the Constructors' Association of Western Pennsylvania. Mr. O'Mara was vice-president for the highway division last year and served on the labor committee.

At the recent convention of the American Concrete Institute at Chicago (ENR March 2, p. 27) Herbert J. Gilkey, left, outgoing president, posed with the newly-elected president Frank H. Jackson, of the Bureau of Public Roads, Washington, D. C.

"DEPENDABLE... on Burning Sand or Mountain Pass!"

HIS OUTFIT IS JUST FINISHING A DESERT PROJECT WHERE THE TEMPERATURE REACHED 110. NEXT WEEK HE MOVES TO A ROCKY MOUNTAIN PASS - HIGHEST ELEVATION, 10,057 FEET. THAT'S WHY HE USES GARDNER-DENVER PORTABLES. THEY KEEP WORKING ANYWHERE.

Gardner-Denver Portable Compressors are available in sizes from 105 to 500 cu. ft. actual capacity.

Ask the men who go after the big jobs—the tough jobs! They'll tell you that two-stage Gardner-Denver Portable Compressors assure full capacity air at *any* altitude—under *all* weather and temperature conditions. Completely water-jacketed cylinders eliminate cold, unlubricated starts—require no "cooling off" periods even in torrid desert heat. For better compressor performance—all the time—choose Gardner-Denver!

USE COMPRESSED AIR FOR SAFETY CONVENIENCE FLEXIBILITY

GARDNER-DENVER SINCE 1859

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver (Canada) Ltd., Toronto, Ontario

Deliver twice the volume of the Arkansas River *with One* ECONOMY PUMP

200,000 gallons a minute can be delivered by one Economy Axial Flow Pump! That's double the mean discharge of the Arkansas River at La Junta, Colo.

For any high capacity, low head application, these pumps are ideal. Operating at high speeds they are light in weight and low in cost.

Installation is simple and inexpensive. No dry well is needed. Just drop pump into channel or wet well and connect Dresser coupling at discharge. It is not even necessary to accurately align piping.

Three general types are available: Light Duty for irrigation uses; Standard Duty for flood control; and Heavy Duty types for continuous service, such as condenser circulation. A special Heavy Duty "Pull-out" type is built to allow removal of shaft and rotor without disturbing piping.

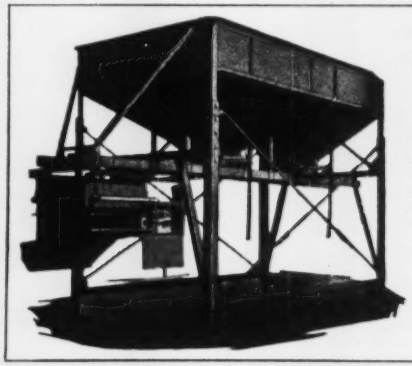
Economy Axial Flow Pumps are made with either oil or grease lubricated bearings, water lubricated rubber bearings and open or enclosed shafts. Capacities range from 1,000 G.P.M. to 200,000 G.P.M. at heads up to 75 ft.

For complete details, write Dept. — CB-4. for Bulletin No. G-845

Centrifugal, Axial and Mixed Flow Pumps for all applications.

Economy Pumps Inc.

DIVISION OF HAMILTON-THOMAS CORP., HAMILTON, OHIO



Winslow BINANBATCH

—Reduces Your Job Cost

Use with a

10S-11S-14S-16S Mixer

Complete—with scale for two or three aggregates.

With two or three overhead storage bins.

For use on culvert—bridge—curbing—foundation jobs.

Wherever above size mixers are in operation.

Prompt Delivery — Write or Wire Mfrd. by

WINSLOW SCALE CO.

TERRE HAUTE, IND.

Distributors Located throughout U. S.

Bruce M. McDill, engineer-in-charge of the stream pollution unit of the Ohio State Health department, displays the mobile laboratory recently put into operation by the department.

L. R. Schofield, principal assistant engineers, and John R. Grandinetti, mechanical engineer, both of the Bureau of Engineering, Surveys and Zoning, check construction details for Philadelphia's Northeast sewage treatment plant.

Left to right, are C. S. Cotton, chief inspector for the District of Columbia Department of Highways, Washington, D. C., on the South Capitol St. bridge construction, L. Jones, inspector, and R. D. Wallace, resident engineer.

Prominent in the construction of Morelos Dam on the Colorado River just below the California border for the government of Mexico are Carl Larson, left, general superintendent, and A. G. Cadaval, vice-president and chief engineer, both of Morrison-Knudsen de Sonora, S. A. Reinforcing steel rising in the background represents preliminary work on the ribs of the diversion structure.

Gordon H. Bannerman of New Haven, Conn., a civil engineering graduate of Lafayette College and an expert on the construction of aerial tramways, has been made manager of wire rope, aerial tramways and suspension bridges for Columbia Steel Co., San Francisco, Calif.

C. W. Lewis, of Warrenton, N. C., supervisor of new road building projects in Warren County for the North Carolina Highway Department, has been transferred to Halifax County, with headquarters at Roanoke Rapids. With the highway department for 28 years, he was supervisor of maintenance at Warrenton for 12 years until recently placed in charge of new construction. He has been succeeded at Warrenton by **P. Powell** of Warrenton, and **H. M. Tharrington** has been named sub-supervisor there.

With the hiring of **Anthony P. Hamann**, former University of Santa Clara business manager, as city manager of San Jose, Calif., **Harold J. Flannery** will be able to return to his job as city engineer. Mr. Flannery in January took over as city manager for 90 days when no one was immediately available to fill the post left vacant by **O. W. Campbell**, who resigned to become city manager of San Diego, Calif. Selected from a field of more than 40 candidates, Mr. Hamann had previously been considered as city manager in 1946, but the president of Santa Clara University was reluctant to release him from his contract.

George R. Prescott is resident engineer for the North Carolina Highway Department on the construction of a bridge across the French Broad River at Asheville, N. C.

John A. Beemer, retired Bureau of Reclamation engineer who pioneered in irrigation development and specialized in big dam construction, has been nominated by Commissioner Michael W. Straus for the Reclamation "Hall of Fame." He was in charge of the construction work on the 265-ft Alcoa Dam in Wyoming, the 235-ft Deer Creek Dam in Utah, and the Anderson Ranch Dam in Idaho.

Edward Miller, South Logan, has become chief engineer of the Logan, Ohio, city waterworks, succeeding the late Charles Dalton.

Philip Partridge, assistant city engineer at Wilmington, Ohio, has been appointed Highland County engineer at Hillsboro, succeeding **Elmer S. Barrett** who had been serving temporarily.

"a vast improvement in production"

SAYS

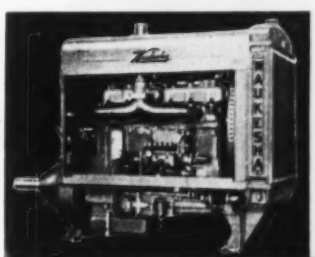
TIMOTHY F. BURKE

WAUKESHA Diesel POWER

● Timothy Burke, Inc., of Scranton, Pa., have been excavating engineers for 67 years—in railroad and dam construction—and, for the past 32 years, coal stripping in the Anthracite region. Right now they're operating eighteen shovels and draglines. With their experience, they *know* a good engine when it comes on the job . . .

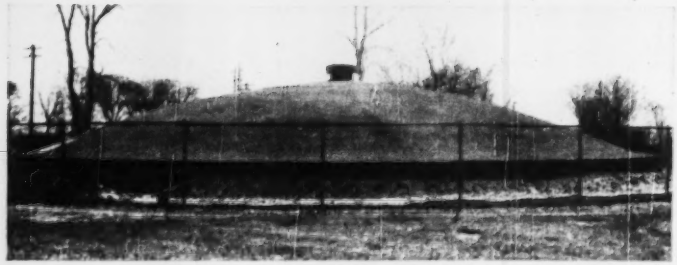
Here's what their Mr. Timothy F. Burke, Vice-Pres. and Gen. Mgr., says: "We installed a Model 148-DKU Waukesha Engine in our Northwest Model 85 Dragline to replace a gas engine (of another make) and we are very pleased with the performance . . . We have noted a vast improvement in production, and with regards to efficiency and economy, we can say the results have been very satisfactory." Easy to start, too, these Waukesha Diesels, and smooth . . . snappily responsive to all power and load demands.

Auto Gear & Parts Company, Inc., of Philadelphia, conversion specialists, supplied this Waukesha Diesel and installed it. Ask your distributor about Waukesha Diesels. Send for Bulletin 1414.



Model 148 DKU WAUKESHA DIESEL—Six cylinders, 5¼-in. x 6-in., 779 cu. in. displacement, 180 hp. maximum.

WAUKESHA MOTOR COMPANY
WAUKESHA, WISCONSIN
NEW YORK • TULSA • LOS ANGELES



"GUNITE" DOMES FOR EXISTING RESERVOIRS

This photo shows one of the two "GUNITE" dome roofs built by us at Mattoon, Ill. in 1946 on tanks approximately 90' in diameter. The heavy "GUNITE" ring girders of the domes are reinforced with pre-stressed hoop rods. Similar domes have been constructed, by us, on existing brick reservoirs. "GUNITE" reinforcing was placed on the interior of the reservoirs and, when necessary, on the exposed surface above the ground to stop leakage and further deterioration.

We have built tanks of all "GUNITE" construction with capacities from 25,000 to 2 million gallons. Because of the imperviousness of "GUNITE" tanks, assured by our method of pre-stressing, they can be placed completely underground, on the surface or elevated with equal success. They are in use for storage of water, oil, chemicals and dry materials.

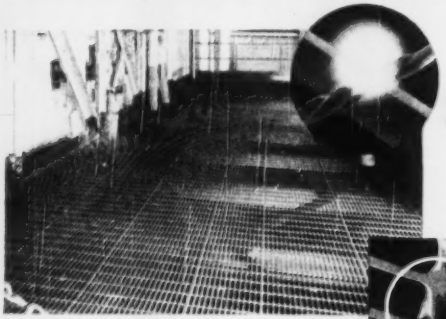
Write today, on your letterhead, for a free copy of Bulletin A 2400 which is illustrated with many examples of "GUNITE" for building and repairing tanks, bridges, buildings and other structures.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.

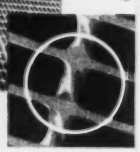
MANUFACTURERS OF THE CEMENT GUN

Rear Adm. Carl A. Trexel, CEC USN, has retired after 33 years in the Navy to become executive manager of the new International Marine Platform Constructors, San Francisco, which will construct offshore marine platforms for oil drilling and other purposes, utilizing a tapered design to resist deep water wave and surge action. Admiral Trexel helped develop artificial harbors used in the cross-channel invasion of Europe. Early in the war he was director of the Alaskan Division, Bureau of Yards & Docks. At retirement he was director of the Pacific and Alaskan divisions, and has been succeeded by Rear Adm. Lewis N. Moeller.

Electroforged into one piece



for STRENGTH *and* SAFETY



Self-cleaning • Easily Maintained • Maximum open area • Simple to cut and bend for fitting around obstacles • Adaptable to many uses.

***NON-SLIP*—the twist does the trick** • Maximum safety and strength . . . that's the ideal combination in Blaw-Knox *electroforged* Steel Grating. Each individual joint is electrically forged together in a union stronger than the surrounding metal! The twisted bar construction gives a firm grip on shoe soles, makes slipping impossible.

WRITE FOR BULLETIN 2296

Blaw-Knox Electroforged Stair Treads available with rolled diamond checker plate nosing, twisted crossbar nosing or abrasive nosing.

BLAW-KNOX DIVISION of Blaw-Knox Company
2001 Farmers Bank Bldg., Pittsburgh 22, Pa. Offices in Principal Cities

BLAW-KNOX ELECTROFORGED STEEL GRATING

S. B. Duckworth has been appointed vice-president in charge of western division operations of Thomas Bryan and Associates, Inc., constructors and engineers, Houston, Tex. A graduate of Missouri State College, he served from 1927 to 1940 as construction superintendent, Great Lakes Construction Co., Chicago. Later with John Griffith & Son Construction Co., he supervised construction of Navy bases and housing projects. In the war he was commander in the U. S. Navy, in charge of barracks and other military construction.

C'MON, IT'S HERE... THE NEW P&H 955-A!
NO MORE FRICTION SWING CLUTCHES FOR ME...TRA-LA!
SEE THOSE FAST STOPS AND STARTS? WITH HYDRAULIC CONTROL SHE'S SMOOTHER ALL AROUND
P&H
BOY! THIS IS IT! MAGNETORQUE* ELECTRIC SWING ON A 2½ YARD SHOVEL
IT'S A CONTRACTOR'S DREAM FOR BIGGER YARDAGE...LOWER COSTS, TOO!
RUGGED? THIS BABY HAS IT.. JUST LIKE THE 1055!

Yes, the new 955A is a standout. And almost a sellout, too! This 2½ yard shovel, a smaller version of the famous P&H Model 1055, can be shipped completely assembled. Lower digging costs in 2½ yd. capacity are important to you, so it's important that you check the P&H 955A right now. Get your copy of bulletin X-122 now!

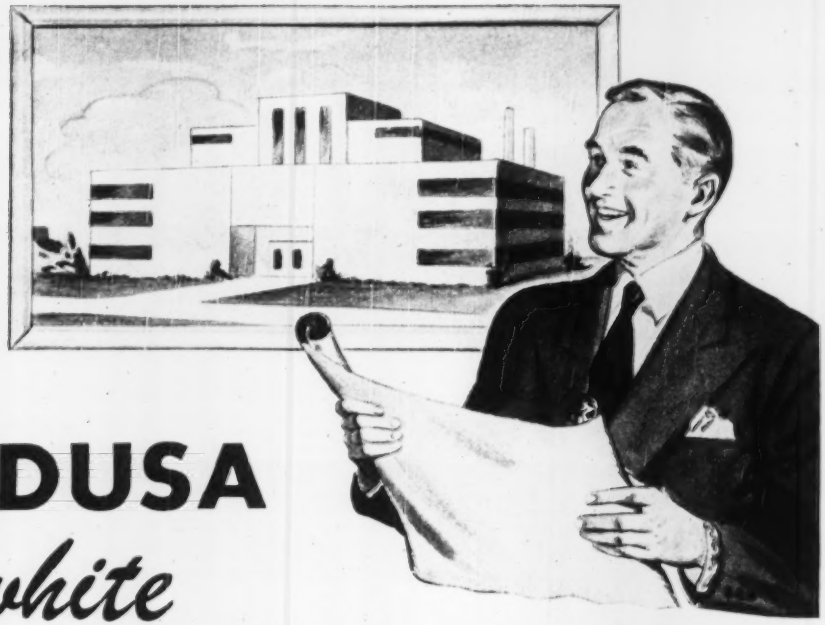
*Trademark of Harnischfeger Corporation for electro-magnetic type clutch

P&H EXCAVATORS
4404 West National Ave.
Milwaukee 14, Wis.

HARNISCHFEGER CORPORATION

LOOK TO P&H FOR ADDED VALUES

Excavators • Overhead Cranes • Hoists • Arc Welders and Electrodes • Soil Stabilizers • Crawler and Truck Cranes • Diesel Engines • Cane Loaders • Preassembled Homes



MEDUSA *white*

Turns Ordinary Designs into Beautiful Buildings

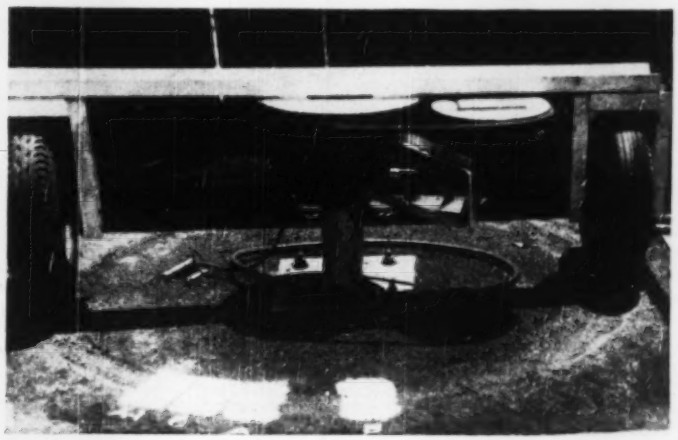
An ordinary design can be turned into a beautiful building by the specification and use of Medusa White Portland Cement in exterior stucco, white concrete, or architectural concrete units. It is, after all, the external building material that chiefly determines the appearance of the construction. Medusa White makes the ordinary the unusual . . . creates modern industrial buildings . . . distinctive public and commercial buildings . . . and pleasing mass-housing units . . . in striking white or lovely pastel colors. Here is a material that is plastic . . . Because of its plasticity, this original white cement can be used by the engineer or contractor to create almost any shape he desires. Medusa White, with waterproofing ground in at the mill, becomes Medusa Waterproofed White Portland Cement and repels water at the surface of the construction . . . We have prepared two booklets, "A Guide to Finer Stucco" and "Medusa White Portland Cement," to show you how to build beautiful buildings with this modern material. Write for them. Medusa Portland Cement Company, 1001-2 Midland Building, Cleveland 15, Ohio.

You can build **BETTER** *with*

MEDUSA PRODUCTS

REG. U.S. PAT. OFF.

EDUCATION and RESEARCH



A SIMPLE DEVICE for testing the lasting qualities of road marking paints has been rigged up by the Los Angeles Bureau of Standards. Powered by a ½ hp motor, the machine revolves a set of 18-in. (o.d.) tires over paint samples 100,800 times in a 24-hour test period. If samples don't break down or wear off after 100,000 tire passes, city engineers accept the paint for road marking.

Paint tested is first applied to a steel panel by a doctor blade in a .01-in. coat. Panels then are allowed to dry for 18 hours and placed around the circumference of a 4-ft. circle described by the revolving wheels. The tires are leaned outward 2 degrees to make wearage even greater. Each wheel supports 67 lbs. weight. In the picture, the black on samples is rubber worn off from the tires, but paint on some of the panels is also seen to be breaking down.

Earthquake measuring

Earthquake measuring instruments will be incorporated in the foundations and columns of the new engineering building, University of California, at Los Angeles. The recording system was designed to measure effects of earth tremors on concrete, steel, and the structure's design.

Some instruments installed during construction will be placed as much as 32 ft underground. The equipment includes Carlson strainmeters, SR-4 strain gages, pressure gages, a seismograph, and an oscillograph.

Earthquake disturbances recorded on the seismograph will automatically set the other instruments working. The oscillograph, which will be electrically connected to all the instruments, will provide visual readings.

C. Martin Duke, assistant professor of engineering, is supervising installation in the building, now under construction. Duke will also head studies of readings from the various devices.

Educational Notes

Chi Epsilon officers—Dean C. L. Eckel, of the college of engineering at the University of Colorado, has been elected president of Chi Epsilon, national honorary engineering fraternity. W. F. Babcock, professor of civil engineering at the North Carolina State College, is vice president. Honorary members chosen are Charles Gilman Hyde, professor emeritus of sanitary engineering at the University of California, Berkeley, and David B. Steinman, consulting engineer, of New York.

Short courses—Under the direction of the college of engineering, Rutgers University (the state university of New Jersey) short courses for water and sewage plant operators will be offered as follows: Mar. 14-April 13, "Elements of Water Works and Sewage Disposal"; Sept. 12 to Oct. 19, "Water Works and Filter Plant Operation"; Oct. 24 to Nov. 30, "Sewage Disposal and Plant Operation." Cooperating are the N. J. State Department of Health, the N. J. section AWWA, and N. J. Sewage Works Association.

Building trades estimating—The North Carolina State College school of engineering has announced that it will offer four short courses on "Estimating for the Building Trades" at Charlotte, N. C., one night a week for 15 weeks. In addition to specific instruction, training also will be given in laws of contract, insurance, labor relations, architectural problems, and other topics of vital interest to the building trades.

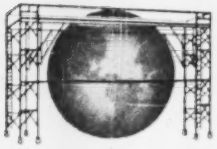
Faculty News

Alexander Tarics has been named professor in charge of surveying at Indiana Technical College, Fort Wayne, Ind. Before coming to this country, he served as chief engineer in the department of city survey in Budapest, Hungary, and taught elements of surveying at the Technical University of Budapest. Robert C. Ruhl, head of the department of civil engineering, was recently appointed dean.

Frank A. Nikuk has taken a leave of absence as consultant on construction equipment for Milton Hale Machinery Co., New York, to serve as a visiting professor of civil engineering at the University of California, Berkeley. He will develop a course in construction engineering.

The appointment of eight new members to the engineering teaching staff of University of California Extension has been announced by L. M. K. Boelter, dean of the UCLA College of Engineering and head of Engineering Extension. They are: Michael V. Smirnoff, lecturer in engineering, University of California, teaching surveying; Charles P. Morgan, consulting engineer—reinforced concrete; John S. Rinehart—strength of materials; Donald P. Love, acoustical consulting engineer—acoustics for architects and engineers; Philip O'Brien, assistant in engineering, UC—corrosion and introduction to corrosion; James M. Lackey, district engineer, Asphalt Institute—design, production and use of asphaltic mixtures for contractors; and Ralph B. Wood, assistant to procurement manager, Holmes & Narver—construction supervision. All classes are taught in the Los Angeles area.

P. H. McGauhey, now on leave at the University of Southern California, will return Sept. 1 to head the department of civil engineering at the Virginia Polytechnic Institute, Blacksburg. He will replace R. B. H. Begg, who will retire after serving as head of the department since 1913. Mr. McGauhey, who will be professor of civil and sanitary engineering, took his degree of M.S. from the University of Wisconsin in 1941. He has just established a sanitary engineering department at the University of Southern California.



Fastest SCAFFOLDING Assembly Ever Devised

Ezebilt

No Bolts
No Wing Nuts
No Loose Parts

For getting up faster ... with no bolts to master, construction men the country over are now specifying Ezebilt Steel-Panel Scaffolding.

Write for New Illustrated Catalog #101 or send for name of nearest distributor.

UNIVERSAL MFG. CORP.
101 North St., Zelienople, Pa.

GRIFFIN

GRIFFIN

WELLPOINT SYSTEMS

JETTING PUMPS

Distributors

GRIFFIN ENGINEERING CORP.
2016 E. Adams St.,
JACKSONVILLE, FLA.

GRIFFIN EQUIPMENT CO., INC.
548 Indiana Street,
HAMMOND, INDIANA

GRIFFIN WELLPOINT CORP.
881 EAST 141st ST. • NEW YORK 54, N. Y.
Phones: MElrose 5-7704-5-6

Elections and Activities

This country is losing ground in efforts to provide adequate highways, according to H. A. Radzikowski, chief of the maintenance branch, Federal Bureau of Public Roads.

Addressing the eleventh annual highway engineering conference of the University of Utah, Radzikowski said 22 years would be needed at the 1949 rate of construction to correct existing highway deficiencies. Some $41 billion would be needed to correct present deficiencies, he said, "but in that time additional highways will wear out or become obsolete."

A. N. Carter, highway division manager, Associated General Contractors of America, reported the need for wider public support for road revenues, suggesting additional gasoline taxes where needed and bond issuance to obtain new highway construction funds.

Gerald E. Bath, planning engineer of the Wyoming Highway Department, suggested increased public participation in surveys preceding road-building to better warrant construction expenditures. Utah State Road Commission Construction Engineer R. W. Griffin cited maintenance cost rises in the state from $561,437 in 1926 to $3,787,000 in 1949. Despite maintenance efforts, Griffin noted, 73% of Utah's federal aid primary roads are outmoded.

Wilmington, N. C., Contractors Association has elected officers: Francis Newton, President; Frank King, vice president and treasurer; Walter Cartier, executive secretary; directors Luther J. Rogers, A. L. Simon, J. W. Hunter.

The Halifax, N. S., Construction Association has elected C. P. Roper president, G. M. Hagen, E. J. Gillis and G. Miller, vice-presidents; E. V. Saunders, secretary-treasurer.

The Tile Contractors Association of America has elected James Scracchitano, New York City, president and Cecil J. Statt, Rochester, N. Y., vice president; H. R. Cole, Washington, D. C., was re-elected executive secretary and treasurer.

George W. Marx, Phoenix, chief sanitary engineer for the Arizona State Department of Health, is president of the Arizona Sewage & Water Works Association. Other officers: Stewart Henderson, Prescott, vice-president; M. T. Goudy, Phoenix, vice-president; and Mrs. Helen Rotthaus, Phoenix, secretary-treasurer. Directors: John Rauchet, Tucson; A. W. Miller, Dario Travaini, Walter C. Hartford, and A. Anton Frederickson, all of Phoenix, and Clark Webb, whose home is in Safford.

Five engineers have been initiated into Tau Beta Pi, national honorary engineering society, at the University of Arizona. They are: Dario Travaini, superintendent of the Phoenix sewage disposal plant, and Harmon E. Keyes, consulting engineer, both of Phoenix; Eldred D. Wilson, geologist for the Arizona Bureau of Mines; Thomas R. Herndon, engineer with San Francisco del Oro Mining Co., a Mexican firm; and Harold C. Schwalen, head of the agricultural engineering department at the University of Arizona. Mr. Keyes was also honored for his electrolytic zinc research and for development of an autoxidation process for acid and iron sulphate production, and Mr. Travaini was honored for his extensive work in the field of sewage treatment.

MAJOR MEETINGS

Third Inter-American Congress of Municipalities, New Orleans, La., May 2-6.

N. Y. State Society of Professional Engineers, Hotel Statler, New York City, May 4-6.

Pacific Northwest Conference, ASCE, Winthrop Hotel, Tacoma, Wash., May 5-6.

American Society of Civil Engineers, Pacific Northwest Conference, Winthrop Hotel, Tacoma, Wash., May 5-6.

Producers' Council, spring meeting, Washington, D. C., May 9-10.

Highway Conference, University of Florida, Gainesville, May 11-12.

U. S. Conference of Mayors, Waldorf-Astoria Hotel, New York City, May 11-13.

Florida Highway Conference, University of Florida, Gainesville, Fla., May 11-23.

American Water Works Association, Pacific N. W. section, Hotel Winthrop, Tacoma, Wash., May 11-12.

National Citizens Conference on Planning, Statler Hotel, Washington, D. C., May 12-17.

American Water Work Association, annual conference, Convention Hall, Philadelphia, Pa., May 21-26.

Society for Experimental Stress Analysis, spring meeting, Hotel Statler, Cleveland, Ohio, May 25-27.

Building Officials Conference of America, Indianapolis, Ind., June 4-8.

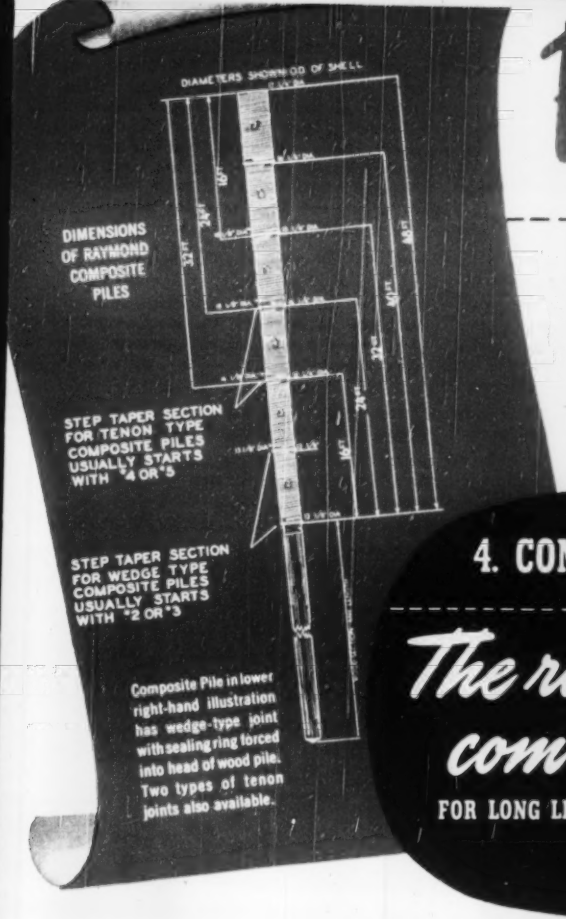
Central States Sewage Works Association, Hotel Lincoln, Indianapolis, Ind., June 8-10.

Western Association of State Highway Officials, Mapes Hotel, Reno, Nev., June 12-15.

Raymond MAKES 5 TYPES OF CONCRETE PILES

1. STANDARD . . . 2. STEP-TAPER . . .
3. PIPE STEP-TAPER . . . 4. COMPOSITE
5. GOW CAISSONS

Raymond installs every type of pile—cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements; also cement mortar lining of pipes by the Centriline Corporation, a Raymond Subsidiary.

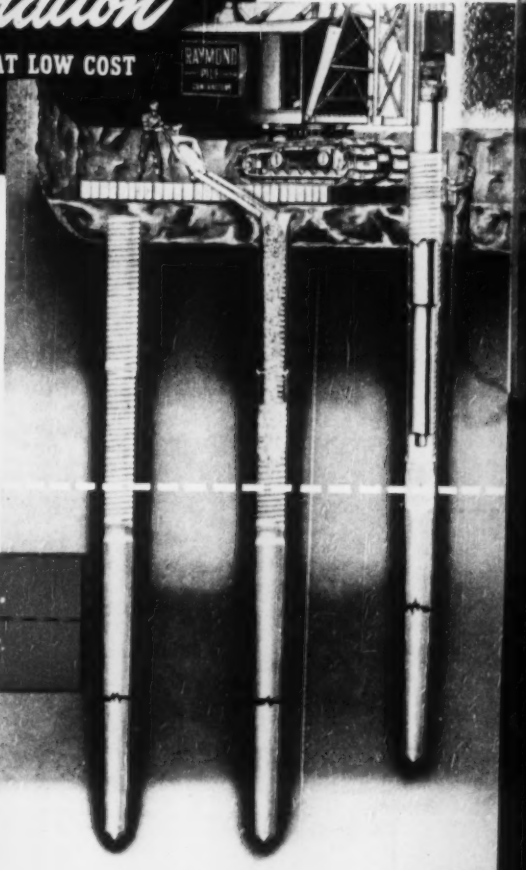

DIAMETERS SHOWN OD OF SHELL
DIMENSIONS OF RAYMOND COMPOSITE PILES
STEP TAPER SECTION FOR TENON TYPE COMPOSITE PILES USUALLY STARTS WITH #4 OR #5
STEP TAPER SECTION FOR WEDGE TYPE COMPOSITE PILES USUALLY STARTS WITH #2 OR #3
Composite Pile in lower right-hand illustration has wedge-type joint with sealing ring forced into head of wood pile. Two types of tenon joints also available.

4. COMPOSITE PILES

The right combination

FOR LONG LENGTH AT LOW COST

Right, driven wood pile is being followed down by pile shell of concrete section. Center, complete pile driven to resistance; pile shell is being filled with concrete. Driver, wedge-type tenon sealing ring, is below ground water level. Completed pile is shown at left.



Raymond Composite Piles are used for economy and long length. The concrete upper section extends from the permanent water table up to the underside of the footing, thus eliminating the expensive excavation, sheeting and pumping often required with wood piles.

Raymond Composite Piles have solved many deep foundation problems permanently and at minimum final cost. We shall be glad to advise you, without obligation, whether they are suitable for your project.

PERMANENT WATER LINE

RAYMOND PILES MAINTAIN DRIVING RESISTANCE

Raymond CONCRETE PILE CO.

140 CEDAR STREET, NEW YORK 6, N. Y.

BRANCH OFFICES: Boston, Syracuse, Philadelphia, Baltimore, Washington, Pittsburgh, Atlanta, Miami, Houston, Kansas City, St. Louis, Cleveland, Chicago, Detroit, Salt Lake City, Portland, San Francisco, Oakland, Los Angeles and principal cities in Latin America

BOOM OF MAYARI R LIFTS BIGGER LOAD

Building concrete structure with Bay City truck crane. The 85-ft boom and 15-ft jib were made from Mayari R.

Recognizing the positive sales appeal of a truck crane that could lift more payload and place it higher, Bay City Shovels, Inc., studied the effect of using booms built from Mayari R low-alloy, high-tensile steel. They tried these booms on their cranes and found them far superior to the shorter, heavier booms of plain carbon steel. As a result, Bay City truck cranes equipped with Mayari R booms are today cutting erection time and racking up profits for progressive building contractors.

Bay City found that Mayari R provided 3 distinct advantages:

1. Because of its higher yield point and tensile strength, Mayari R allows them to decrease the deadweight of their booms, with the same lifting capacity; or make them longer, or increase their lifting capacity, without increasing deadweight.

2. The superior properties of Mayari R enable the boom to withstand the deflections occurring in such structures.

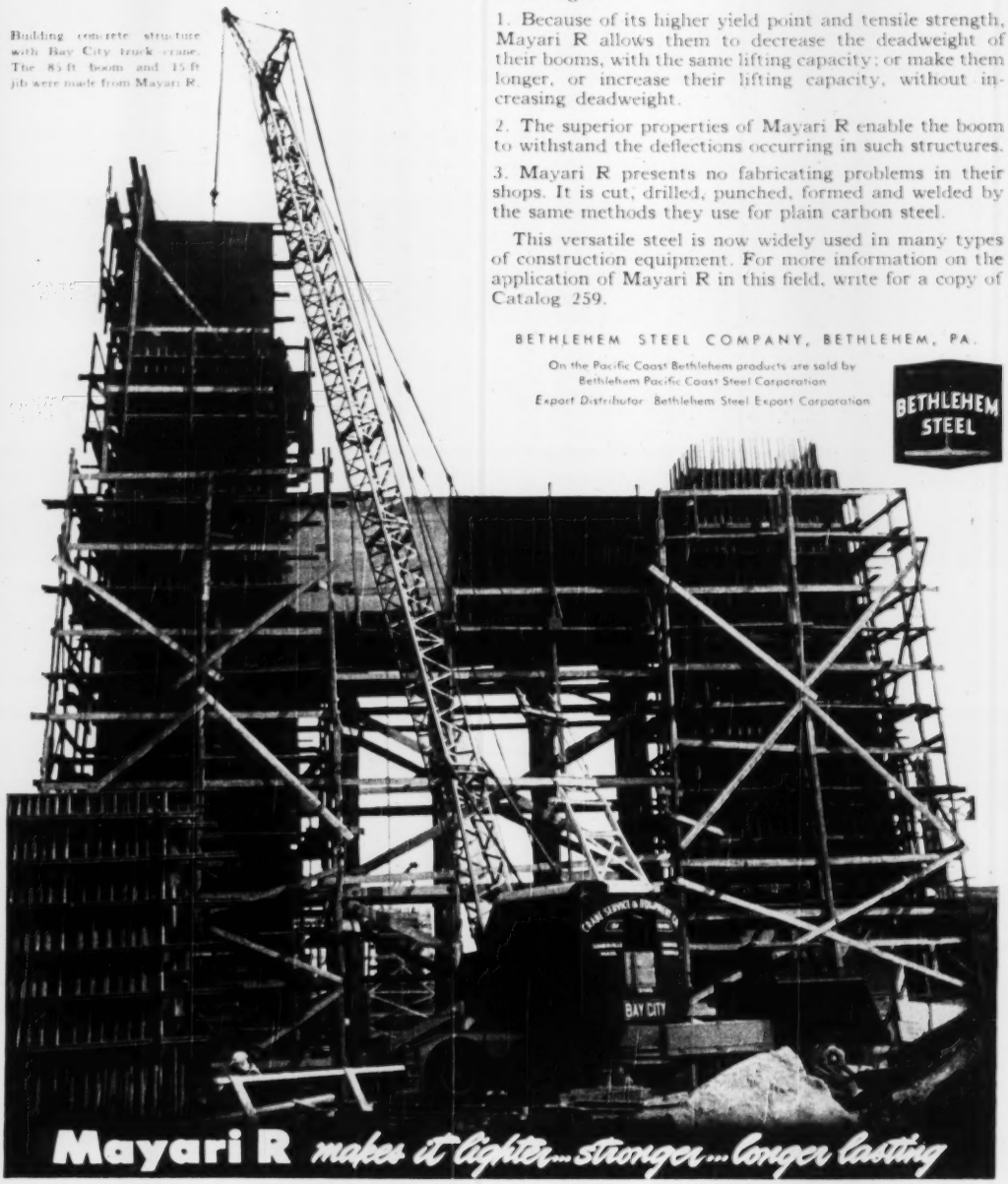
3. Mayari R presents no fabricating problems in their shops. It is cut, drilled, punched, formed and welded by the same methods they use for plain carbon steel.

This versatile steel is now widely used in many types of construction equipment. For more information on the application of Mayari R in this field, write for a copy of Catalog 259.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



Mayari R *makes it lighter... stronger... longer lasting*

OBITUARY

C. A. Thompson, 48, founder and owner of the C. A. Thompson Construction Co. died in Nashville, Tenn., March 18. He attended the University of Tennessee School of Engineering at Knoxville. For 12 years he was an engineer with the Tennessee Department of Highways & Public Works, and for the last 14 years he had been owner and manager of his own company with headquarters in Centerville. His firm constructed many large highway projects in Tennessee, one of the largest being the new John Harlan Memorial Bridge across the Duck River at Columbia, completed at an approximate cost of $800,000.

Duncan Hannigan, 78, a topographical engineer with the Geological Survey for 45 years, died at Washington D. C., April 10. In the first world war he was a captain in the Army Engineer Corps. He had retired from the Survey in 1943.

Wm. F. Thomas, 59, civil engineer, died April 8, at Aspinwall, Pa. He had been employed by the Allegheny County engineering department and by the Koppers Co.

Earl O. Mills, 55, planning consultant, died at Louisville, Ky., April 14. He had been a planning engineer for more than 30 years and was formerly president of the American Institute of Planning. In 1947 he was a special consultant on urban problems for the U. S. Chamber of Commerce in Washington, D. C.

Larry C. Lawrence, 48, engineer at the Veterans Hospital at Fayetteville, N. C., died April 10. He was a graduate of North Carolina State College and a native of New Bern, N. C.

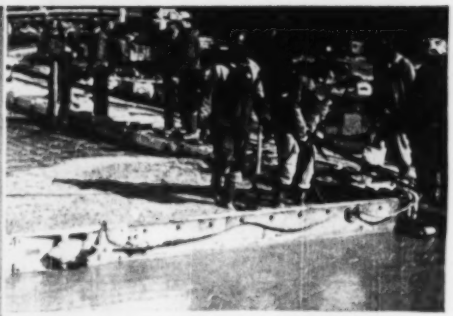
George E. Tiffany, Sr., 48, died at Omaha, Neb., April 10, chief engineer of the Clarkson Construction Co., from 1941 to 1946 he was a construction engineer for the Kansas highway department.

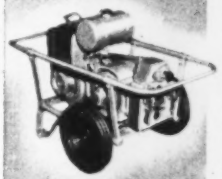
Robert T. Campbell, 63, city engineer of Brainerd, Minn., for 32 years, died recently.

Kirby V. Jones, of Charlotte, N. C., civil engineer with J. A. Jones Construction Co. for the last five years, died April 6. Mr. Jones participated in the building of the famous Ebro hydroelectric dam erected in Spain, the Grand Coulee Dam, and the Martin-Jordan hydroelectric dam in Alabama.

IT'S A "HUMDINGER"

FOR BRIDGE DECKS • MUNICIPAL PAVING • HIGHWAY WIDENING





MODEL M-1 POWER PLANT

Capacity 1.25 KVA. Other plants of 2.5 and 5 KVA. All have permanent magnet generators requiring no adjustment or maintenance. All generate both single phase and 3 phase 60 cycle, 115 volt AC.

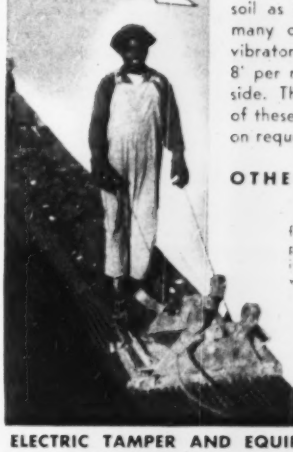
JACKSON PAVING UNIT

It consists of a manually guided, electric vibratory paving machine and portable power plant and will place upward of 65 cu. yds. of stiff mix concrete per hour; will undercut at side forms and curbs; strike off to crown (both regular and inverted;) roll back for second passes. Works right up to and around sewers, manholes and other obstructions. Quickly adaptable to any slab width from 6' up to any practical width. Has strong tendency to propel itself. Operators work from front, side or rear. Power Plant generates both single and 3-phase 60 cycle AC and may also be used for lights and operating other contractor's tools. Write for complete details.*

AND FOR THE FASTEST, handiest means of thoroughly compacting granular soils, investigate

THE JACKSON VIBRATORY SOIL COMPACTOR

This machine can be used to tremendous advantage in compacting granular backfill under factory floors, in trenches, bridge approaches, close to bridge abutments, alongside foundations, under footings, ramps, sidewalks, municipal pavements, loading docks; in compacting such granular soil as is used in earth fill dam construction and many other places. Delivers up to 4500 1/2-ton vibratory blows per minute. Propels itself at 6' to 8' per min. One man can guide two units side by side. The Jackson M-1 Power Plant will operate two of these machines simultaneously. Complete details on request.*



OTHER MONEY-MAKING VIBRATORY EQUIPMENT

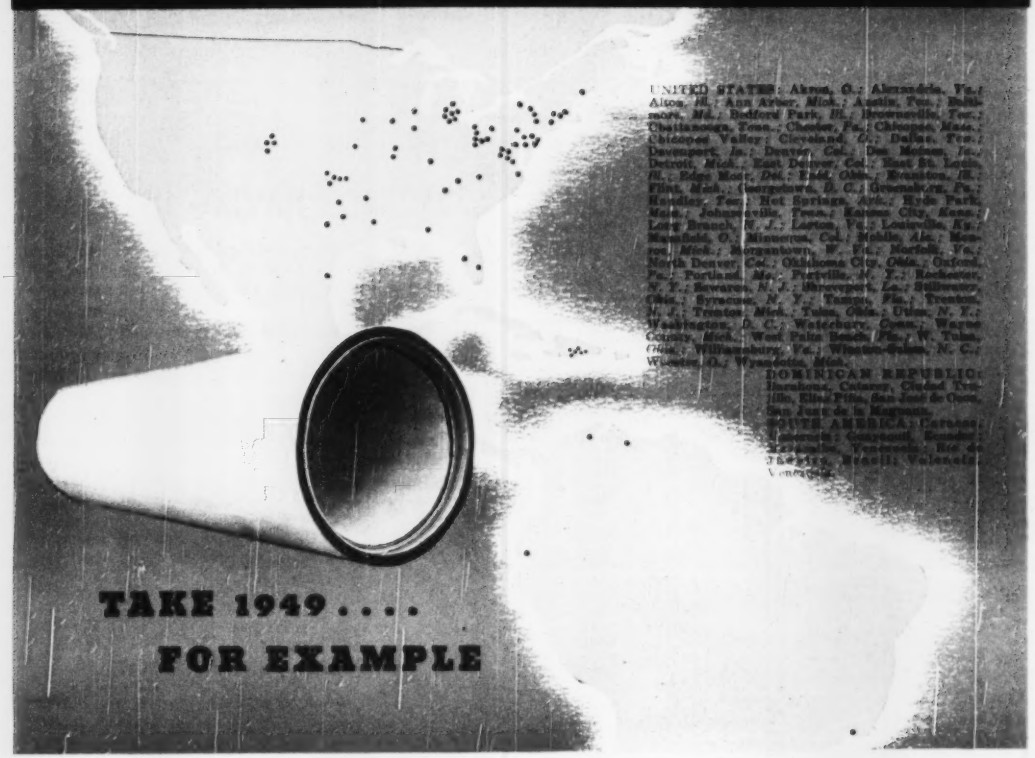
for vibrating full slab widths of highway and airport paving. Side Form vibrators for attachment to finishers and spreaders, mass and general construction vibrators ideally suited to each type of job.

* FOR SALE OR RENT at Jackson Distributors.

Write for the handy JACKSON "POCKET GUIDE" describing the complete line.

ELECTRIC TAMPER AND EQUIPMENT CO. • LUDINGTON, MICH.

Let's look at the record!



In 1949, Lock Joint Pipe Company supplied or contracted to supply reinforced concrete pressure pipe in 75 cities and towns throughout the western hemisphere. Completion of these contracts requires production of the equivalent of more than 75,000,000 inch diameter feet of pipe varying in size from 12" to 120" and designed for pressures varying from a minimum to better than 200 pounds per square inch.

In 1949, Lock Joint Pipe Company provided pressure pipe for installations from Portland, Maine, to Rio de Janeiro, Brazil, from Denver, Colorado, to Ciudad Trujillo in the Dominican Republic. And a past performance is any criterion, every installation will produce another "satisfied customer."

We will gladly refer you to any or all of the many federal agencies, state or county authorities, private water supply companies and industrial concerns which have installed Lock Joint Pressure Pipe during the last forty years. We are confident that their testimony will prove to be Lock Joint's best salesman.

For over forty years Lock Joint has specialized exclusively in the production and technical improvement of reinforced concrete pipe for water supply and distribution mains, sewers, storm drains, culverts and subaqueous installations.

LOCK JOINT PIPE COMPANY

P.O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wayne, N. J.; Forest, Kan.; Detroit, Mich.

BRANCH OFFICES: Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. Oklahoma City, Okla. • Tulsa, Okla. • Hato Rey, Puerto Rico

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

UNIT PRICES BID BY CONTRACTOR

Water transmission main, Chester, Pa.

Alternate bids within alternates featured the bidding on $5.6-million, 209,000-ft. Chester-Harrison Hill Reservoir pipe line for Chester Municipal Authority Dec. 15, 1949. Albright & Friel, Inc., Philadelphia, are consulting engineers. Clarence L. Conner is executive manager for the authority.

Alternate Plan No. 1 called for pipe 42", 39", 36", 30" and 24" in diameter plus a pumping station not included in the Dec. 15 bidding. Alternate Plan No. 2 called for 48", 42", 36", 30" and 24" pipe and no pumping.

Each of these two plans was divided into 4 sections so that contractors could bid on the job as a whole or on any or all of its sections.

Under each contract in each of the alternate plans, bids could be submitted for supplying or installing pipe or both, and bids could be on either of the following kinds of pipe: (a) reinforced concrete pressure pipe, (b) coated and lined steel pipe, (c) cement lined cast iron pipe.

When the smoke cleared and the permutations and combinations were worked out, 20 contractors had submitted bids on laying the pipe, 7 on the job as a whole, 2 more on all 4 sections separately, 2 on 2 sections and 9 on 1 section each. Four companies bid on supplying pipe, none on the cast iron alternate and only two on the entire job, both alternate plans, one on concrete and one on steel. These companies each bid also on each of the sections.

The awards went to concrete pipe on Plan 2 on bids for the job as a whole, work to start Jan. 16, 1950. Lock Joint Pipe Co., Ampere, N. J. will supply the pipe complete by May 25, 1951, for $3,599,617 and Berlanti Construction Co., Harrison, N. Y., will handle the field construction for $2,053,472 which must be complete by July 12, 1951.

The successful bid on the overall construction was 6% lower than the sum of the low bids on the 4 sections. On Plan 1, however, the low bid on the whole job was 17% higher than the sum of the low bids on the 4 sections. For supplying the pipe the steel bid was the same for the whole job as for the sum of its parts. But the concrete pipe bid for supplying the whole job in one contract was $13,055 or 0.36% lower than the bids on the 4 separate sections.

The following unit prices are those bid on Plan 2 by the low and second low bidders plus selected unit prices from other alternates to fill in the record for sizes.

Alt. Plan 2 Furnishing Pipe

1 Lock Joint Pipe Co. (contract) $3,599,617
2 Bethlehem Steel Co. 3,864,127
500 days for delivery

Items		Quantity	Unit Prices 1 Concr	2 Steel
48"	lf	130,848	$18.30*	$20.25
42"	lf	58,010	17.00	17.25
36"	lf	8,210	11.90	12.25
30"	lf	9,320	9.10	9.35
24"	lf	3,270	7.40	7.40
Corp. stop assemblies				
2"	ea	30	70.00	(20.00‡)
1½"	ea	55	60.00	(28.00‡)
¾"	ea	100	50.00	(20.00‡)

* In alt bids on 65,080 lf & 65,768 lf, this was bid at $18.40

Prices in Alt. Plan 1 bid but not in Alt. 2

39"	lf	130,848	15.50	15.75
Corp. stops				
2"	ea	30	55.00	(45.00‡)
1½"	ea	55	45.00	(23.00‡)
¾"	ea	100	35.00	(11.50‡)

‡ quoted from pipe-laying contractor's low bid on laying steel pipe, not a part of bid to supply steel pipe

Alt. Plan 2 Constructing pipe line

2a Berlanti Constr. Co., Harrison, N. Y., contract $2,053,472
a J. Miele Constr. Co. & others Newark, N. J. $2,301,312

These unit prices are for trenching and installing concrete pipe. The low bidder bid identical unit prices all the way through for placing steel pipe except for corporation stops. On concrete pipe these were in the bids to furnish pipe, on steel pipe they were in the bid for installing pipe. The low bidder did not bid on laying cast iron pipe. The second low bidder also bid identical prices on trenching and laying concrete, steel or cast iron pipe except for the items "Installing Mains, 42", 48", 36", 30", 24"" and on these five items he bid $1 more on each unit price for steel and $2 more for cast iron than he did for concrete pipe.

Items		Quantity	Unit Prices 1a	2a
Trenching				
42" pipe				
8.5'-8.5' & less	lf	39,886	$1.70	$2.75
8.5'-10.5'	lf	4,090	4.70	3.39
10.5'-12.5'	lf	870	4.80	5.55
12.5'-14.5'	lf	450	5.00	6.60
14.5'-16.5'	lf	260	5.50	14.00
16.5'-18.5'	lf	130	6.00	20.00
18.5'-20.5'	lf	150	10.00	30.00
48" pipe				
9' & less	lf	124,020	4.90	3.32
9'-11'	lf	4,000	5.00	4.29
11'-13'	lf	1,400	5.50	6.82
13'-15'	lf	350	6.00	10.00
15'-17'	lf	70	6.50	16.00
17'-19'	lf	90	10.50	24.00
36" pipe				
8' & less	lf	6,430	4.70	3.65
8'-10'	lf	940	4.80	4.50
10'-12'	lf	300	5.00	7.30
12'-14'	lf	570	5.50	11.00
14'-16'	lf	90	6.00	17.00
30" pipe				
8' & less	lf	8,200	4.70	3.26
8'-10'	lf	650	5.00	4.18
10'-12'	lf	270	6.00	7.30
30" pipe cont'd				
12'-14'	lf	120	10.00	12.00
14'-16'	lf	80	15.00	20.00
24" P. & less	lf	3,270	6.85	2.20
Rock excav.	lf	82,500	1.00	1.00
Inst mains				
42" pipe	lf	55,890	2.00	4.40
48"	lf	129,930	1.50	4.60
36"	lf	8,210	1.00	4.45
30"	lf	9,320	1.00	4.40
24"	lf	3,270	1.00	3.95
Major Creek Xings				
Tr & inst pipe				
42" $47.83	*230lf	ls	11,000	14,465
36.36	110lf	ls	4,000	7,850
33.33	120lf	ls	4,000	8,560
35.00	100lf	ls	3,500	7,140
39.86	70lf	ls	2,750	4,620
43.83	60lf	ls	2,750	4,510
47.92	240lf	ls	11,500	12,210
41.67	90lf	ls	5,750	5,610
41.67	90lf	ls	5,750	5,610
37.50	100lf	ls	5,750	6,490
40.63	80lf	ls	5,250	5,500
50.00	75lf	ls	5,750	5,390
41.67	90lf	ls	3,750	6,600
41.30	115lf	ls	4,750	7,370
41.67	90lf	ls	3,750	5,500
41.67	90lf	ls	3,750	5,500
41.67	90lf	ls	3,750	5,500
42.50	100lf	ls	4,250	6,490
50.00	130lf	ls	9,500	8,300
48" $41.67	190lf	ls	5,000	7,920
42.86	70lf	ls	3,000	3,900
40.00	100lf	ls	4,000	5,040
46.43	140lf	ls	6,500	11,000
43.75	80lf	ls	3,500	5,500
36.67	150lf	ls	5,500	9,420
63.63	160lf	ls	10,000	19,800
30" $41.67	120lf	ls	5,000	8,809
RR Xings				
P RR 42" 50	lf	ls	5,000	6,280
B & O 48" 118	lf	ls	13,000	12,100
P RR 30" 80	lf	ls	8,000	7,150
Valve assemb				
16" rel	ea	73	300.00	220.00
Comb 1" & 4"	ea	52	400.00	660.00
Blow-off				
8" assembly	ea	21	300.00	200.00
6"	ea	26	300.00	145.00
4"	ea	20	250.00	115.00
C1P drains				
8" pipe	lf	1,050	5.00	4.00
6"	lf	1,300	5.00	3.50
4"	lf	1,000	5.00	3.00
C1B conct anchors				
For 42" pipe	ea	120	70.00	50.00
48"	ea	225	70.00	52.00
36"	ea	20	70.00	43.00
30"	ea	45	70.00	41.00
C1B conct				
for anchorage	cy	165	50.00	44.00
for bends	cy	655	50.00	37.00
Extra conct				
C1B	cy	425	40.00	44.00
C1C	cy	300	40.00	38.00
C1D	cy	7,050	20.00	20.00
Lumber, hp				
Shoring	M fbm	115	90.00	200.00
Pipe cradle	M fbm	50	150.00	220.00
Gate valves				
24"	ea	3	2,000	1,800
16" & slv	ea	1	2,000	2,000
12"	ea	4	250.00	330.00
10"	ea	4	225.00	140.00
8"	ea	4	150.00	100.00
6"	ea	4	150.00	70.00
House reloc	ls	1	100.00	2,000
Fire hyds	ea	7	300.00	250.00
6" CIP conn	lf	120	4.00	4.50
Rdwy paving, Bitml conct				
For 42" pipe	lf	65	15.00	14.00
48"	lf	50	15.00	14.00
36"	lf	25	15.00	14.00
Bitum surf				
For 42" pipe	lf	520	16.00	12.00
48"	lf	470	16.00	12.00
36"	lf	250	16.00	12.00
30"	lf	85	16.00	12.00
24"	lf	3,275	8.00	6.50
Surf scrngs				
For 42" pipe	lf	50	4.00	1.00
48"	lf	200	4.00	1.00
36"	lf	50	4.00	1.00
Add'nl paving				
Bitml conct	sy	90	10.00	20.00
Bitum surf	sy	455	10.00	16.00
Surf scrngs	sy	129	3.00	1.20
Temp paving	sy	120	2.00	3.30
Pipeln markers	ea	943	35.00	22.00
Transm cables				
12" conduit	lf	27,000	0.75	1.00
Duct	lf	50	2.00	4.00
Elect pull box	ea	90	20.00	25
Creek reloc				
W. Br. Chester Cr.	lf	600	10.00	5.00
Dump riprap	sy	125	10.00	5.00

* Low bid (1) per lf bp = 4.0 on plans

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager J. A. MAHONEY, Reports M. R. ROESSLER, Statistics

WATER SUPPLY

BIDS ASKED

Wis., South Milwaukee—B.A. 5/3—City, water filtration plant addn. Consider Townsend & Associates, 6 E. Ohio Ave., Chicago, Ill., engrs. CD 11/25, under LB.

Tex., Anahuac—B.A. 5/5—City, WA, sys. exten., impvs., $40,000. Howard & Kelly & Johnson, Scanlan Bldg., Houston, engrs. CD 10/6.

Tex., Stamford—B.A. 5/5—City, R. G. Bowdy, mgr., Stamford, water distr. sys., $40,000. Plans deposit $25. Freese & Nichols, 407 Daniel Bldg., Fort Worth, engrs. CD 9/16.

Conn., Norwalk—B.A. 5/9—Norwalk Comrs. Second Taxing Dist. of City of Norwalk, City Hall, impvt. to city lake reservoir, intake structure, existing earth dam. Plans deposit $25. Buck, Seifert & Jost, 111 E. 19 St., New York 3, N. Y., engrs.

Wash., Everett—B.A. 5/9—Snohomish Co. Pub. Utility Dist. 1, 3019 Colby Ave., 12,700 ft. of 16-in. distr. mains, 2 pumps, with 700 and 250 gpm pumps, 10 fire hydrants, 200,000-gal. steel tank and remiscellaneous. Engr's deposit $15. J. W. Forsyth & Fisher & Associates, 1 Ave., Seattle, Zone 1, engrs.

Tex., Abilene—Bids Asked—Raymond Thompson, Abilene, let contr. water lines, $51,000.

LOW BIDDERS

Tex., Roscoe—City, Apr. 6, W.A. mains, pr. B. Fordan, Plainview, $29,995. CD 12/27.

CONTRACTS AWARDED

▲ Md., Baltimore—City, Bureau of Water Supply, 54-in. Municipal Bldg. Zone 2, cutting water tunnel, etc., at Patapsco-Liberty Rd. Tunnel, drill and spot remiscellaneous to Samuel B. Root, Inc., 1004 Druid Park Dr., $2,066,000. Bids 4/11, awarded 4/12. CD 4/11.

Tex., Houston—South Park Development Co., 4660 Holmes Rd., water lines, facilities, to J. R. Stewart & Son, Pasadena, Approx. $57,775.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Neb., Madrid—B.A. 5/2—City, A. W. Murray, clk., sanitary sewer, $22,500. Consulting engr. Clifford Bldg., Omaha, engr. CD 2/8, under LB.

N. Y., Brooklyn—B.A. 5/2—President Brooklyn Borough Hall, Zone 2, relief sewers in 17 Ave. from 27 to 60 Sts.

† O., Brookville—B.A. 5/3—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., approx. 7,500 cu. ft. incinerator bldg. 33 for Veterans Administration Hospital. CD 8/23/49, under Hosp. Bldgs.

N. Y., Rockaway—B.A. 5/3—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, buildings, structures and equip., contr. 4, plumbing, gas fitting, heating and ventilating. Contr. 4A, electrical work. Rockaway Sewage Treatment Works. Plans deposit $50, for contr. 4; $25 each others. CD 11/16/44.

† Okinawa, Ryukyus Islands—B.A. Co. Ch. Asst. U. S. Eng., APO 331, San Francisco, Calif., water supply, primary roads, incl. 1 m. g. reinforcing underground clear well, chlorinator laboratory, masonry block control house, in connection with an existing treatment plant, 250,000-gal. underground reinforced reservoir, erect 250,000-gal. elevated steel tank, approx. 12 mi. water distr. lines, reconstruct or realign approx. 7 mi. highway, graded for 4 lanes, further to put mix asph. 2 lanes, construct all drainage structures.

N. Y., Freeport—B.A. 5/8—Bd. Sewer Comrs., Municipal Bldg., 46 N. Ocean Ave., approx. 29,930 lin. ft. 8-in. sanitary sewers, with 5-in. house laterals, to-gether with manholes, appurtenant structures. Plans deposit $25, Baldwin & Cornelius Eng. Dist., 117 W. Sunrise Hy., engrs. CD 4/6.

† Mass., West Roxbury—B.A. 5/9—Veterans Admin., Munitions Bldg., Wash. 25, D. C., 2,500-cu. ft. incinerator, Bldg. 16, Veterans Administration Hospital, Spec. No. 508. (Correction—Bid date.) CD 4/4.

† Tex., Kerrville—B.A. 5/9—Veteran Admin., Munitions Bldg., Wash. 25, D. C., Incinerator Bldg. 66, approx. 7,000 cu. ft., for Veterans Admin. Hospital, Spec. No. 5041, Proj. No. 20-4118.

Calif., Los Angeles—B.A. 5/10—Los Angeles Sanitation Dist. 2, 1206 S. Maple Ave., 24,500 lin. ft. 8-in. to 48-in. reinforced sewer pipe, from Cherry Ave. and 68 St. to Studebaker Rd. and Firestone Blvd., Long Beach. Approx. $900,000. A. M. Kean, dist. engr.

Tex., Abilene—Bids Asked—Raymond Thompson, Abilene, let contr. and storm sewers, $60,000.

LOW BIDDERS

Calif., San Jose—Santa Clara Co., Contractor, Dist. 2, Courthouse, Apr. 10, $1,020,516.75, 4- to 24-in. vitrified clay sanitary sewers, from Pruneyard Dist., 4,790 Wardpark Ave., $154,703. CD 3/24.

N. Y., Atlantic Beach—West Long Beach Sewer Dist., Town Hall, Hempstead, Apr. 4, sewage treatment plant, from Peirce Constr. Co., 330 W. 42 St., New York, Zone 18, $471,000. CD 3/14.

Pa., Schuylkill Haven—Schuylkill Haven Municipal Authority, Hall, Schuylkill Haven, Mar. 30, sewage plant from Hidley Constr. & Constr. Co., 1234 Wood St., Phila., $132,662. Sewerage sys. from Verlanti Constr. Co., 15 Oakland Ave., Harrison, N. Y., $528,300. CD 3/9.

Tex., Dallas—City, City Hall, Main and Harwood Sts., rejected bids Mar. 23, 24 in sanitary sewer main from Greenville Reservoir to Northwest Hy. and Buckner Blvd. L. B. $348,203. CD 3/30, under LB.

Tex., Roscoe—City, Apr. 6, sanitary sewers, from Jr. B. Fordan, Plainview, $51,745. Est. $50,000. CD 12/27.

CONTRACTS AWARDED

O., Toledo—Toledo Frazer Compost Corp., c/o Frazer Products Corp., Alpena, Mich., compost plant, Ve and Hamilton Sts., to grind garbage. Owner bu. 3. Approx. $100,000-$175,000. CD 3/24.

Tex., Houston—South Park Development Co., 4663 Holmes Rd., storm and sanitary sewers, to J. R. Stewart & Son, Pasadena. Approx. $51,500 and Approx. $66,665 respectively.

BRIDGES

BIDS ASKED

Ont., Atwood—B. A. 5/1—C. Little, clk., Elma Twp., Atwood, 80 ft. concrete bridge on Side Rd. 5 and 6 Concession 10. Approx. $57,000. C. C. Parker, c.e., John St. S., Hamilton, engr.

Mich., Detroit—B.A. 5/9—City, Dpt. P. Wks., 104 City-County-State, FW-1104, concrete repair, Macarthur Bridge, 2 sets each, inbd. and outbd. trusses, Slide Belair Rd. over Detroit River, 1 set of East Grand Blvd. over Detroit River.

New Jersey—B. A. 5/9—New Jersey Turnpike Authority, Woodbridge, Wm. Moran Memorial Bldg., Trenton, Middlesex Co., contract, construction, 12 structures, concrete structures between Prospect Plains and Raritan River, Sect. 4A. CD 7/15, under Streets and Roads.

O., Cleveland—B.A. 5/12—City, City Hall, City Engr., concrete, structural steel, in engr. dwgs., for contr. 1, $400,000. Plans deposit $5. C. E. Siefkin, C.E. water, City engr. CD 3/1/43.

▲† N. M., Los Alamos—B.A. 5/24—U. S. Atomic Energy Comm., Los Alamos, 820 ft. open spandrel

PROJECTS COVERED

Projects—By Size

Construction projects have reported over the United States in excess of $25,000 each. Of these, municipal sewer systems, water supply, earthworks, waterways $26,000; other public works $56,000; industrial buildings $68,000; other buildings $260,000.

Classes of Construction

(Name in order of Listing)

Water Supply — Public Housing
Sewer, Waste Disposal — Office Buildings
Bridges — Commercial Buildings
Streets & Roads — Industrial Buildings
Earthwork, Waterways — Unclassified

Stages Reported

PROPOSED ACTION (including appointment of engineers or architects)
BIDS ASKED (new announcements only. For full calendar see Construction Digest of ENR)
LOW BIDDERS (for bids below $500,000 value and low bidder news will be the first reports published. Of the projects received except where award is not made by the low bidder. In this case is usually necessary contract award report will be published.)
CONTRACTS AWARDED (except awards to low bidders previously reported in low bidder stage)
Items shown are of issue in which last previous report was published.

Symbols and Abbreviations Include

† — Federal Government
▲ — Project of $1,000,000 or over
B.A. — Bids Asked
ENR — Engineering News-Record
CD — Engineering News-Record Construction Daily

new arch bridge with 432 ft. span carrying 40 ft. roadway and 4 ft. concrete sidewalks, across Los Alamos Canyon, Inv. No. 241-50-53. $4,000,000.

LOW BIDDERS

Florida—State Rd. Dpt., George Washington Hotel, Jacksonville, exten. concrete pipe and concrete box culverts, new concrete box culvert Rd. 75 between Cottondale and Rd. 73, Job 6303-121, Dickerson Co., from Coggins & Deerhurst, Chipley, $52,986. CD 3/30.

Iowa—State Hy. Comm., Ames, Apr. 11, 284445 ft. continuous 1-beam bridge on Co. Trunk Rd. S 33 at Wapsipinicon River Crossing in Sect. 5-Bridge Proj. S-326-2), Linn Co., from Brogan Constr., 107 Masonic Temple Bldg., Des Moines, $125,864.***15 reinforce box culverts and extens. and 1 1-ft. pipe culvert on Interstate Top Mixture asphaltic surfacing on Iowa 146 from Grinnell to Gilman, Proj. F-part-Marshall, Poweshiek and Tama Counties, from Wagner-Johnstown Co., Sioux City, $79,737.***reinforced outlet to 50x100 ft. concrete deck girder bridge on U. S. 77 in Sioux City at the Ferry Creek crossing in Sect. 29-89-47, Proj. No. (II-886(4), Woodbury Co., from South & Hooper, Inc., 524 Insurance Exchange Bldg., Sioux City, $105,598. CD 3/24.

▲ Mass., Boston—Massachusetts Dpt. of Public Works, Admin. Bldg., 100 Nashua St., viaduct over Boston Harbor, Moon Island to Long Island, from Merritt-Chapman & Scott Corp., 29 Mt. St., $2,709,951. CD 3/20.

▲ O., Cleveland—New York Central System, E. J. A. Dougherty, chf. engr., La Salle Street Station, Chicago, Ill., removing existing Bridge A and constructing 2nd track vertical lift span between towers 119 and 120, including erection of reinforcement for Main Span, Contr. 1, to Roberts & Schaefer Co., 400 S. Wells St., Chicago, Ill., $432,034; superstructure from Mt. Vernon Bridge Co. to Mt. Vernon, $1,106,395. Bids 3/28. CD 3/15. $1,538,429. CD 3/15.

CONTRACTS AWARDED

Georgia—State Hy. Dpt., Atlanta, underpass at Seaboard Air Line R. R. and 4.0 mi. graded approaches on Atlanta-Marietta Rd. State Route 3, located approx. 1,000 ft. north of Hathcombe River, Proj. 11-(7), STL, Cobb Co., to Nunnemaker & Wells Inc., Orangeburg, S. C., $167,687.***graded approaches 2,565 mi. at Bridge site at Altamaha River on Hazlehurst-Jesup Rd., approx. 7 mi. north of Hazlehurst, F-093-1-(2), Jefferson Davis and Montgomery Counties, to Shepherd Constr. Co., Inc., 2400 Bellwood Rd. N. E., Atlanta, $69,859.***for 1gr approaches at Turnpike Creek and culvert approaches at Bogue Creek on Mobile Douglas Rd. approx. 4.5 and 8.17 mi. south of McRae, F-191-1-(2), Telfair Co., to Cornelius Constr. Co., McRae, $57,409.***for 1gr approaches at Altcha River on Monroe-Laurens Rd., State Route 19 approx. 2 mi. west of west city limits of Monroe, F-(-1-(1), Walton Co., to C. L. P. Hinton, Decatur, $70,998. CD 3/30 for bridge and paved approaches 0.336 mi. at Soap Creek and raising water, bridge at Savannah River incl. paved approaches 0.342 mi. on Lincolnton-McCormick S. C. Rd., SAP 1-(4), Lincoln Co., Ga., and McCormick Co., S. C., Contr. 1, to Dixie Construction Co., Inc., 747 Wheaton St., Savannah, $127,427 and Contr. 2, to Cornelius Co., Macon, $460,976. Grand total $954,356. Bids 3/7, awarded 4/11.

Idaho—State Hy. Dpt., Boise, 119.2 ft. underpass and 133 ft. concrete railroad overhead on 3.264 mi. U.S. 95, Kootenai, to Sverdrup & Parker, 915 Marietta St., Spokane, Wash., $296,657. Bids 3/31, awarded 4/1. CD 3/24.

▲ New Jersey—New Jersey Turnpike Auth., Wm. Moran Memorial Bldg., Trenton, Contr. 26, south abutment and wing, 40 approach piers, 3 north approach piers, north abutment and 2 construction road embankments on each side of river at Hackensack River near Laurel Hill, Sect. 7, Hudson Co., to Cayuga Foundation Corp., 30 Vesey St., New York, N. Y., $1,629,230. Bids 3/28, awarded 4/12. CD 3/15, under LB.

Ohio—State Hy. Dpt., T. J. Esser, 1-in., Columbus, Zone 15, Type T-71 and structure, 1 span steel concrete Bridge No. 04-68.159, 49° grading, draining, paving U. S. 68 Greene Co., to D. J. Crowley & Sons, Inc., 426 W. Water St., Xenia, $346,781; est. $388,200.***Type T-52 and structure, 1 span concrete Bridge No. DA-47-50, 1 span concrete Bridge No. DA-47-65, S. R. 47, Darke Co., to Manly Bros., Greenville, $57,836, est. $73,500.*** Type T-35 and structure, 2 span steel Bridge No. Bu-11-68.2, 2 span concrete Bridge No. Bu-71-47, 4.59 mi. paving, draining and signals, U. S. 127, Butler Co., to Jones & Kellman, 10 Alabama Ave., Hamilton, $101,369, est. $122,400. Grand total $466,936. Bids 3/28. CD 3/15, under Streets and Roads.

STREETS AND ROADS

BIDS ASKED

Minn., Renville—B.A. 5/2—City, H. J. Hahn, clk., lower and surface pavement along Trunk Hy. 212, incl. grading, 7 block furnish, place 7,000-ton stabilizing, 17,000 sq. yd. AC bit. wearing surf. construct 0.5 mi. curb and gutter, 654 lin. ft. gutter

The Spotlight is on LIDDICOAT

Pioneer in the field of Single Use Bits

Through the years over the "rock drilling circuit", the Liddicoat bit has received "top billing" as the "star performer" of mining operators and contractors everywhere.

The Liddicoat bit was a natural from the start. Experience of the years, plus extensive research, has added to its many talents.

Today, Liddicoat bits are world famous because:

1 - **Their cost is extremely low**

2 - **Labor involved is at a minimum**

3 - **They are easily attached and removed**

4 - **They are used to destruction, then thrown away**

For better and cheaper drilling, contact

WESTERN ROCK BIT MANUFACTURING COMPANY

Manufactured for sale in 11 western states, the Philippines and Alaska by Western Rock Bit Mfg. Co., 552 W. 7th So., Salt Lake City.

CALUMET-HECLA CONS. COPPER COMPANY

Manufactured for sale in the 37 eastern states by Calumet-Hecla Consolidated Copper Company of Calumet, Michigan. U. S. A.

VACUUM CONCRETE

Most economical to use for
PRECAST WALLS, FLOORS, ROOFS, BEAMS and COLUMNS—
IT MULTIPLIES THE SPEED

Vacuum Lined Forms can be
RE-USED AS MANY AS 8 TIMES IN ONE DAY
VACUUM HANDLING EQUIPMENT
Strips castings from molds and handles them without breakage

VACUUM CONCRETE INC. 4210 SANSOM ST. PHILA. 4, PA.

stabilizing bit, road mix, one concrete deck bridge on steel I-beams and treated timber piling, one concrete box culvert of bridge length, small drainage structures, 7.615 mi. State Rd. 450 between point approx. 4.5 mi. northeast of Kissimmee and State Rd. 15, Job. 9250-250, Osceola Co., from Hubbard Constr. Co., Orlando, $180,840***limerock base with bit. strips with b. conc. 7.281 mi. Rd. 5 between point in Delray Beach and Lantan, Job. 9312-101, Palm Beach Co., from Rubin Constr. Co., West Palm Beach, $132,339***, 3 drainage structures, 1 mi. Rd. 804 between Okeechobee Rd. and Lake Park Rd., Job. 9375-1114, foregoing Palm Beach Co., from E. W. Axell Eng. & Constr. Co., Lakeland, $348,951***bit., 200 ft. concrete, steel bridge, small drainage structures 7.79 mi., Job. 1402-201, Fed. Aid Proj. FO31-1(2), Pasco Co., from A. F. Pirtle, Jr., Sports Field Pershing Sts., Tallahassee, $464,140***dbit mix sand asph. surf. 14.426 mi. Rt. 21 between Rd. 215 and Duval Co. line, State Proj. Job. 7107-111, Clay Co., from Sam Finley, Inc., 292 North Ave. N. W., Atlanta, Ga., $108,892***limerock base with bit. 25.866 sq. yd. Farmers Market at Ft. Pierce Job 9409-103, Fine Sod Inc., from Finley P. Sports Field, Pershing Sts., Tallahassee, $58,782***ocala rock base 12" conc. bit. binder course, constr. overpass structures, concrete deck on steel I-beams, concrete piling small drainage structures 0.705 mi. Rd. 5 at crossing F. E. C. Railway at Oslo, Fed. Aid Proj. FSI-005-4(15) Indian River Co., from Powell Bros., Inc., Fort Lauderdale, $211,517***rds. S-22, Bar Co., from Faure & Coleman Constr. Co., 4 Points Woodville Hy., Tallahassee, $168,519. CD 3/30.

Iowa—State Hy. Comm., Ames, Apr. 11, rolled stone base and heavy bit. surf. to 3.434 mi. Iowa 2/48 road of Lumotte east to U. S. 61 at Zwingle, Proj. F-834(2), Dubuque and Jackson Counties, and paving, grading 11.555 mi. Iowa 161 from present pavement south of Dawson westerly to west corporation lines of Bagley, Proj. F-619(5), Guthrie and Dallas Counties from Cameron-Joyce Co., Keokuk $536,084 and $70,347, respectively***grading 14.345 mi. Rd. 5 road from S. W. corner sect. 5-78-11 northerly to N. E. corner N.W¼S.W¼ sect. 34-81-11, Proj. S-1240(1), Harrison Co., from Evans Clark Co., 2924 Harrison St., Des Moines, $96,344***paving, grading 0.88 mi. Iowa 2 out of Clarinda east, Proj. F-833(2), Page Co., from Peter Kiewit Sons' Co., 1004 Omaha National Bank Bldg., Omaha, Neb., $77,404***grading 11.553 mi. Iowa 146 from Grinnell to Gilman, Proj. F-841(2), Marshall, Poweshiek and Tama Counties, from Wagner-Johnston Co., Sioux City, $129,879***grading 11.926 mi. Co. Trunk R1 D from jct. corner Sect. 30-80-40 east to N. E. cor. Sect. 31-81-41, Shelby Co., from Braden Constr. Co., Tarkio, $50,366. CD 3/29.

Ohio—State Hy. Dpt. T. J. Kaiser dir., Columbus, Zone 15, cancelled Bids to have been opened Mar. 29, Type T-71, 13.5 mi. structure grading, paving, 11 span concrete Bridge No. 10-67-21.3 sidewalks, curbs, Lorain Co., Type T-5.9 conc. and structure grading draining, paving 5 span concrete Bridge No. JI-152-00, S. R. 152, Jefferson Co., Type T-44 in B-20 and structure, 1 span Bridge No. 14-141-19.4A, S. R. 141, Gallia Co., CD 3/29.

▲ **Pennsylvania**—State Hy. Dpt., Harrisburg, Apr. 14, r. conc. base with bit. surf. 34.08 ft. [illegible] 5th on each side of an existing earth dual hwy. r. conc. base with bit. surf. 34.08 ft. wide and bit. surf. for adjustments, 20.581 ft. L. R. 67009 (M) T., R. U. S. 30, Mountville City to Manheim City, Lancaster Co., telphia Co., from James Murphy, Inc., 7129 Frankford Ave., Phila., $709,190***bit. surf. existing pavement 18 ft. and 22 ft. in width and widen existing pavement with plain r. conc. base variable width to 41.4 ft. in width, bit. surf. new base and existing pavement 18 ft. to 22 ft. wide, 11.101 ft. L. R. 17, R. 87 from point 4 mi. east of North Mehoopany to near the intersection of L. R. 241 near Russell Hill, Wyoming Co., from A. B. Cole, Meshoppen, $65,539***bit. surf. existing pavement 22 ft. wide incl. existing structures, 2.580 ft. R. R. 181, L. R. 1, T. R. 31, from point 3½ m. from city of Washington eastery direction Co., from Charles Barnick, Jefferson $238,840***bit. surf., crushed stone base to 6 ft. 14 ft. 24 ft. and variable in width, 18,402 ft. L. R. R. 158 (4), T. R. 29, between T. Greenville Boro. and Red Hill Boro., Montgomery Co., from S. Maxar, Inc., Lansdale, $395,035***crushed aggregate base with bit. surf. to 20 ft. 22 ft. and variable in width and two I-beam bridges, 23,441 ft. R. R. 2057, T. R. 43, from near Friedensburg eastern toward Shartlesville, Berks Co., from Livengood, Inc., R. D. 3, Washington, $342,513***r.s.m. pavement with crushed aggregate base 4 ft. wide and bit. surf. new base and existing pavement, crushed aggregate base widening 8 ft. to 16 ft. incl. resurfacing of existing bit. surf. to 16 ft. incl. resurfacing of existing bit. surf. 16 ft. wide, 10,105 ft. L. R. 107 (4), T. R. 452, beginning at and Philipsburg Boro., Centre [illegible] Snyder, 639 Lucknow Lane, Harrisburg, $529,621***bit. surf. existing pavement and bridge from 24 ft. and variable in width, extend and [illegible] existing bridge, 8 [illegible] new bridge for 10 ft. wide, 19,929 ft. L. R. [illegible] T. R. [illegible] The southwestern [illegible] Meadows Twp. [illegible] Fayette Co., from [illegible] P. O. Box 422, [illegible] $167,019. CD 3/29.

Wis.—Milwaukee City, E. conc. W. Metro St. from Badger Constr. Co., 246 W. Capitol Drive, $68,250; N. Downer Ave. from Wisconsin Blvd., Zone 10, $15,747, bids 4/7, awarded 4/10.

CONTRACTS AWARDED

Fla., Jacksonville—Bd. Comrs., Duval Co., Court House, paving and resurf. parts of 43 roads to Glen G. Searing Co., 2225 Broadway St., Zone 4, $240,000, est. $250,000. Bids 4/3; Arthur Sallee, co. engr. CD 3/27.

Georgia—State Hy. Dpt., Atlanta, grading, paving two bridges 6.744 mi. Claxton-Metter Rd., State Route 129, beginning at end of present pavement approx. 4.3 mi. north of Claxton and exten. toward Metter, S-0729(1), Evans, Tattnall and Candler Counties, and grading, paving 1 bridge 6.102 mi. 0.898 mi. located on State Route 9 to Dublin Woolen Mill Rd. beginning at State Route 29 and exten. in Dublin Woolen Mill, 5.204 mi. and one bridge on Dublin Mt. Vernon Rd. beginning at State Route 29 and exten. toward Mt. Vernon S-1578(1) and S-1581(1), Laurens Co., to Nash Constr. Co., Macon, $125,372 and $73,689 respectively***grading, paving 8.492 mi. Denmark-Brooklet-Leefield Rd., FAS Route 793 beginning approx. 0.2 mi. southwest of Brooklet and exten. via Brooklet toward Leefield, excepting 1.790 mi. present pavement in Brooklet, S-0731(1), Bulloch Co., to J. G. Attaway, Statesboro, $79,364***grading, paving 4.004 mi. Fulston-White Oak Rd., State Route 252, beginning at end of present pavement at Tarboro and exten. toward Folkston S. Dele (2), Camden Co., to Sexton-Ward Constr. Co., Brunswick, $70,971***grading, paving 2.958 mi. Cane Carnilla Rd., State Route 112, beginning approx. 6.5 mi. north of Cairo and exten. at intersection with State Route 262 at Grady-Mitchell Co. line, S-0517 (2), Grady Co., to J. B. Hobbs Constr. Co., Donaldsonville, $98,776***grading, paving 5.042 mi. Cleveland-Cornelia Rd., State Route 17, beginning at intersection with State Route 115, approx. 2.0 mi. east of Cleveland and ending at intersection with State Route 15 approx. 1 mi. south of Demorest, S-1349 (2), Habersham Co., to Southland Constr. Co., Toccoa, $94,749***grading, paving 3 bridges 6.027 mi. on what is locally known a Columbia-Geneva Rd. beginning approx. 6 mi. east of city limits of Columbus and exten. east to reinforced concrete deck girder, F-004-1(1), Muscogee Co., to Hugh Steele Constr. Co., Centre, Ala., $233,432***grading, paving 9.917 mi. on what is locally known at Hawassee-Clayton Rd. beginning at end of present pavement at Towns-Rabun Co. line and ending at present pavement approx. 6.5 mi. west of Clayton, F-0512(2), Rabun Co., to W. T. Smith, 401 Gillwaters Rd., Atlanta, $416,015. Bids 4/7, awarded 4/11. Grand total $1,342,998. CD 3/45.

▲ **New Mexico**—Bureau Reclamation, Dpt. Interior, El Paso, Tex., reconstructing and paving roads at Elephant Butte and Caballo Dams, Spec. RS-EP-2 Region 5, Rio Grande Proj., to Lee Moor Contg. Co., Basalt Tower, El Paso, Tex., $76,048. Bids 4/10, awarded 4/20. CD 3/14.

Ohio—State Hy. Dpt., T. J. Kaiser, dir., Columbus, Zone 15, 4.5 mi. drainage facilities, widen with conc. base and B. conc. surf., U. S. R. 20, Sandusky Co., to C. E. Johnson Co., P. O. Box 29, Maumee, $139,779, est. $161,300***conc. resurf. S. R. 2, Lake Co., to The William L. Schloss Co., 3491 Lee Rd., Cleveland, $55,617, est. $54,420***type T-32 and structure grading, drainage, 1 span concrete Bridge No. 11-147-15.77, S. R. 238, Highland Co., to Beechview Constr. Co., 501 Fountain Square Bldg., Cincinnati, $64,982, est. $83,400***type T-56 on B-20, grading, draining, paving, S. R. 303, Summit Co., to General Asphalt Paving Co., 307 Kohler Bldg., Canton, $116,255, est. $146,500. Grand total $376,433. Bids 4/11. CD 3/29.

Tex., Houston—South Park Development Co., 4440 Holmes Rd., street grading and surf., to J. R. Stewart & Son, Pasadena, $69,000.

▲ **Washington**—State Hy. Dpt., Olympia, r.conc. and [illegible] 10.175 mi. Primary State Hy. 1, Kalama River to Longview Ave. and Ostrander to Castle Rock, F.A.P. Nos. FI-001(1)-101 and FI-001(1)-102, Unit 5, Cowlitz County, to Peterkort Bros., 1100 Leary Way, Seattle, $678,784***reinforcing, crushed stone and mineral aggregates for bituminous surfacing, to Peter Kiewit Sons' Co., 1302 Alaska St., Seattle, $60,640***concrete pavement, pavement stabilization course and surf. with bit. penetration mixed, Type D, 1.871 mi. Primary State Hy. 2, Leavenworth to Dryden, F.A.P. Nos. FI-002(1)-101 and FI-002(1)-102, Unit 1, Chelan Co., Arterra, Inc., $109,786***clearing, grading drainage, [illegible] of 4.161 mi. Primary State Hy. 8, Elma-Lake to Springdale, F.A.P. F041, [illegible] Unit 1, Grays Co., to R. L. Bray, 3220 Ide St., Spokane, $217,420. Grand total $1,066,630. Bids 4/11. CD 3/29.

EARTHWORK, WATERWAYS

BIDS ASKED

† Connecticut—[illegible] Apr. 26, [illegible] Co., Sec. C, Eng. [illegible] Hartford. [illegible] CD 4/4.

LOW BIDDERS

† Wisconsin—[illegible] Dist. Engr., Dept. Public Works, Capitol Bldg., Madison, [illegible] Cascade [illegible] Sheboygan, 9 [illegible] 17 mi. [illegible] Sheboygan Co., [illegible] Cascade, $313,471, est. $510,000. CD 2/14.

† New Mexico—[illegible] Bureau Reclamation, Dpt. Interior, El Paso, Tex., [illegible] Tularosa Div., [illegible] Lateral Canal Improvements, [illegible] Contg. Co., [illegible] Tower, El Paso, Tex., [illegible] $12,[illegible] Bids 4/11, awarded 4/20. CD 3/14.

Proj., from Permanente Cement Co., 1924 Broadway, Oakland, Calif., $2.65 per bbl. f.o.b. Permanente, Calif. CD 3/27.

BIDS ASKED

† **Mass., Falmouth**—HANGAR—B.A. 5/4—U. S. Eng., New England Div., Bldg. 21, U. S. Naval Drydock, South Boston, 1 story, 180x200 ft., corrugated metal hangar, Otis Air Force Base, Camp Edwards. CD 4/3.

† **Mo., St. Joseph**—ADMINISTRATION—B.A. about 6/20—U. S. Property & Disbursing Officer, Fort Leonard Wood, National Guard Bureau, 117x249 ft. administration bldg., 65x207 ft. squadron warehouse, 31x83 ft. motor maintenance shop, all masonry walls with brick as alternate, Resecrans Field, Bloomington & Frohwerk, 724 26 Railway Exchange Bldg., Kansas City, Mo., archts.

LOW BIDDERS

S. D., **Aberdeen**—AIRPORT—City, rejected bids Mar. 22, airport work, $216,005. New bid date Apr. 11. CD 3/8.

CONTRACTS AWARDED

N. Y., **Idlewild**—ELECTRICAL FEEDER SYS.—New York Port Auth., 111-8 Ave., New York, Zone 22, electrical feeder sys. between primary sub-stations at New York International Airport, to Charles Michaels, Inc., 135 Gold St., Brooklyn, $344,694. CD 3/24.

PUBLIC BUILDINGS

BIDS ASKED

▲ **Conn., Danbury**—HOUSING—B.A. 4/28—City of Danbury, Housing Auth., Danbury, 115 dwellings units on Mill Ridge and S. Ridge, at Fairfield Ridge Site, $1,000,000. Plans deposit $50. Frank La Cava, 248 Main St., archt. CD 1/17.

† **Me., Brunswick**—HEATING PLANT, etc.—B.A. On Or About 5/1—U. S. Eng., Army Base, Boston 10, Mass., constr. (a) central heating plant, power, radio and operations bldgs. (b) gate, house, administration, supply and administration and maintenance bldgs., motor repair shop, and post exchange (c) altering, renovating 6 other bldgs. (d) constr. concrete tanks, floor slab, aluminum enclosure of 12 3-sided towers approx. 25 high with 50 ft. span (e) water distr. and sewage disposal sys., connections, etc., CIVENG 10-016-50-31.

† **Pennsylvania**—BUILDINGS, etc.—B.A. About 5/1—U. S. Eng., First and Douglas Sts., N. W. Wash., D. C., buildings, utilities in vicinity of Red Rock No. Eng 49-080-50-20.124. Plans deposit $50.

Va., Powhatan—CELL—B.A. About 5/1—State Dpt. Welfare & Institutions, Travelers Bldg., Richmond, constr., $600,000.

N. Y., **Binghamton**—GARAGE and FIELD OFFICE—B.A. 5/2—Howard Davis, civ. Eng. Supervs. Broome Co. County Office Bldg., construction, heating, plumbing and electrical work for Broome County Hy. Dpt. garage and field office, Chenango Bridge. Plans deposit $5, general, 12 each others. C. P. West, assistant engr. CD 12/29/49.

N. Y., **Gloversville**—SCHOOL—B.A. 5/1—Bd. Educ., High School Bldg., Main St., Southside and East Side Schools. Plans deposit $25. W. Brown Van Dresser, 31 W. Fulton St., archt. CD 3/28/49.

Ga., Thomson—HOSPITAL—B.A. 5/2—McDuffie County Hospital Auth., Thomson. Plans deposit $25. Hentz & Laing, 5 E. C. Bldg., Augusta, archts. CD 2/11, under Commercial Buildings.

Minn., Morris—HOSPITAL—B.A. 5/2—Stevens Co., E. F. Anderson, aud., Morris, 2 story, tunnel, 142 x 264 ft. memorial hospital, $550,000. Plans deposit $15, Maurey, Tuller & Ellerbe, 502 Foshay Tower, Minneapolis. CD 4/29/49.

N. Y., **Greenlawn**—SCHOOL—B.A. 5/2—Bd. Educ., Union Free School Dist. 6, school addn., Broadway, $275,000. Plans deposit $10. Jas. Van Alst, Main Rd., Centerport, archt.

N. Y., **Hempstead**—LIBRARY—B.A. 5/2—Village Clerk, Nichols Court, Library, Washington St. $1,000,000. Plans deposit $10. Voorhees, Walker, Foley & Butler, 214 E. 44 St., New York Zone 17, archts.

N. C., **Charlotte**—HIGH SCHOOL—B.A. 5/2—Mecklenburg Co. Bd. Educ., Courthouse, 70,000 sq. ft. High School, Plans deposit $50, general, $25 mechanical, work, Graham & Ty, Independence Bldg., Charlotte, archts.

† **Mass., Hingham**—GARAGE—B.A. [illegible] Officer in Charge of Construction, Fleet Naval Bldg., Headquarters, 449 Summer St., Boston 10, Mass., 1 story, 240x41 ft., 9840 sq. ft. Plans deposit $10.

N. C., Durham—H. S. [illegible] and [illegible] addn., State Dpt. Negroes, Archts. Engrs. Assn., Raleigh, [illegible] Plans deposit $50. Ted Fort, [illegible] Durham, archt.

O., Akron—SCHOOL—B.A. 5/1—Bd. Educ., 10 Broadway, 6 additions and alterations to 10 schools, Greenwood Ave., [illegible] to be [illegible] Plans deposit $10. Edward Dalton, 1 Cascade Plaza, Akron, archt.

▲ **Calif., Merced**—HOSPITAL—B.A. 5/15—Merced [illegible] Hospital Dist., [illegible] Plans deposit $50. Clark & Butler, 114 Pacific Bldg., San Francisco, archts. [illegible] A. Maxwell Evarts, 704 Merchants Exchange Bldg., San Francisco, archt. [illegible] 923 Market St., San Francisco, archt. CD 4/3.

LOW BIDDERS

† N. M., Albuquerque—ATTENDANTS QUARTERS—veterans Admin. Mundens Bldg., Wash. 25, D. C., project canceled converting Attendants Quarters Bldg. to medical wards for Veterans Admin. Hospital, Spec. 5001. CD 1/3.

Pa., Hollidaysburg—BOILER PLANT—General State Auth., 13 and Herr Sts., Harrisburg, Apr. 12, general contract boiler plant at Hollidaysburg State Hospital, from Moger Bros., 2609 Beale Ave., Altoona, $209,600***heating, for same from Willard S. Detrick, Inc., 2921 N. Broad St., Phila., $315,760***; general contract steam distr. and tunnel from Washington Eng. & Constr. Co., Washington, $94,077***heating for same from Geo. W. Lewis, 605 Baltimore Ave., East Lansdowne, $85,600. CD 3/21.

Wis., Racine—HOME—Racine Co., Apr. 6, general contract 2 story, 45x270 ft. concrete steel brick, from Nelson & Co., Inc., 1550 Yont St., $397,000. CD 3/16.

CONTRACTS AWARDED

▲ Mich., Detroit—HOUSING—Detroit Housing Auth., 109 Griswold St., 174 unit, masonry, concrete reinforcing and boiler house addn. to Kirby-Simmons Co., 1300 Penobscot Bldg., $1,978,000. Bids 3/20, awarded 4/11. CD 3/24 under LB.

Neb., Wayne—DORMITORY—State Normal Bd., Capitol Bldg., Lincoln, general contract dormitory at Wayne Teachers College to Wilson Constr. Co., 535 J St., Lincoln, $333,321. Bids 4/1. CD 3/2.

N. C., Charlotte—HIGH SCHOOL—Mecklenburg Co. Bd. Educ., W. B. McClintock, chn., Courthouse, West High School, to Little & Spratt, Inc., P.O. Box 1053, 1205 E. Worthington St., $448,888. Bids 3/23. CD 4/5.

O., Hamilton—SCHOOL—Bd. Educ., Hamilton—28 room Harrison Monroe School, to James I. Barnes Constr. Co., 6 Prentice Ave., Springfield, $559,000. Bids 3/30, awarded 4/6. CD 3/16.

Wash., Renton—SCHOOL—Sch. Dist. 403, Renton, general contract 3 story, 99x140 ft. reinforced and 52x52 ft. high school addn. to Wm. Glacier Constr. Co., 3928 6 Ave. N., Seattle, Zone 7, $411,000. Bids 4/6. CD 3/22.

N. S., Greenwood—HOUSING—Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, D. N. D. housing development of 50 houses to Terminal Constr. Co., 1012 Dominion Sq. Bldg., Montreal, Que., Approx. $675,000. Bids 3/23. CD 3/10.

P. E. I., Summerside—HOUSING—Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S., 106 houses at D. N. D. married quarters, R. C. A. F. Station, to Eastern Woodworkers Ltd., Brother St., New Glasgow, N. S., Approx. $704,000. Bids 4/4. CD 3/20.

COMMERCIAL BUILDINGS

BIDS ASKED

▲ Calif., Los Angeles—HOTEL, etc.—B. A. S. 15—Hotel Statler, 7 Ave. and 33 St., New York, N. Y., 13 story Los Angeles Hotel Statler and office bldg., 900 to 948 Wilshire Blvd., $10,000,000. Hollabird, Root & Burnham, 510 N. Michigan Ave., Chicago, 11, archts. Stewart B. Barney, Robert Kushlan, Mark F. Deering, 809 W. 4 St., domestic engrs. CD 10/27.

SOON LETS CONTRACT

Colo., Denver—OFFICE—United American Life Insurance Co., Colorado National Bank Bldg., soon soon lets contract 3 story, basement, 50 x 125 ft. reinforced concrete stone office bldg., $100,000. Boyd, Raymond H. Ervin, 616 Patterson Bldg., archts. and engr.

CONTRACTS AWARDED

Calif., Sacramento—RESIDENCES—Lee Shirek, 2418 F. Rose Lane, to erect 5 residences in Sierra Tract, Owner builds. $522,000.

▲ Mo., St. Louis—STORE—May Dpt. Store Co., M. J. May, pres., Lammas Bros Dept. Store, Railway Exchange Bldg., 601 Oliver St., June 31, 3 story, basement, 4 mezzanine floors, 260 x 320 ft., brick steel and reinforced conc., dept. store, incl. parking facilities on nearby lots, 2,180 car capacity, air-conditioning, Kingshighway Blvd. and Chippewa St., to Westlake Constr. Co., Railway Exchange Bldg., 611 Oliver St., Zone 1, $2,500,000. CD 1/14.

Mo., St. Louis—HOUSING—Sarah E. Thomas, Thomas Investment Co., 1129 Fairfield Ave., Zone 12, construct five 6 to 18 family 2 story, Williamsburg Colonial style houses along Fairfield Ave. between Dakland and Clayton Aves., in Parkhurst Development, to Charles C. Roth, 4033 Dellrose, Zone 16, Approx. $350,000.

Mo., Webster Groves (St. Louis P.O.)—HOUSING—Burton W. Thenke Bldg. Co., Telma and Glendale Sts., 29 1/2 story stone concrete houses with carports or garages, Webster Park Estates, Clayton Rd. south of Big Bend Blvd., own forces. Approx. $500,000.

O., Dayton—BUSINESS—Wilmington Realty Co., Sidney Eisenberger pres., 324 Grand Ave., 2 story business bldg. on Wilmington Pike, just south of Patterson Rd., to have 2 storerooms on main floor and offices on second floor, 100 ft. frontage to Henry Stutz & Son, 30 N. Ludlow St., Approx. $300,000. Lever & Neuhart, Inc., 30 S. Ludlow St., archts.

Pa., Phila.—RESIDENCES—Colonial Park Inc., 3300 Lincoln Liberty Bldg., resident & development Barnes and Ransell Sts. to Oliver Arnold Constr. Co., 1 owner, $250,000.

Pa., Phila.—RESIDENCES—Mayfe Builders, Inc., 5917 N. 5 St., residential development, Large St., 7200 block, separate contracts, $250,000.

▲ Pa., Pittsburgh—OFFICE—Equitable Life Assurance Society, 393 Seventh Ave., New York 1, N. Y., three - 20 story office bldgs. on 23 acre site at junction of Allegheny and Monongahela Rivers, to Starrett Bros. & Eken, 401 Ave. of the Americas, New York, N. Y., $50,000,000. CD 9/27.

Tex., Houston—DWELLINGS—W. C. Perkins, 701 Gulf Bank Bldg., 36 dwellings, Owner builds. Approx. $200,000. CD 4/10.

Tex., Monahans—RESIDENCES—W. D. Bellamy, Box 86, Monahans, 66 residences, Owner builds. Approx. $550,000. CD 4/7.

Wis., Milwaukee—CLUBHOUSE—Milwaukee Boat Club, 1023 N. Jackson St., Zone 2, 1 and 2 story part bunnt, 144x244 ft., clubhouse, to Seizer-Orist Co., 6222 W. State St., Wauwatosa, Zone 14. Approx. $650,000. Bids 4/5. CD 3/14.

INDUSTRIAL BUILDINGS

SOON LETS CONTRACT

Ore., Portland—WAREHOUSE—E. E. Hazeltine & Co., 6 to Clake, soon lets contract 120x400 ft. steel frame warehouse, Alex Stojanov, 414 N. Shaver St., engr.

CONTRACTS AWARDED

Fla., Jacksonville—WAREHOUSE—E. I. duPont de Nemours & Co., du Pont Bldg., Wilmington, Del., concrete warehouse, Dennis St. and A.C.L. R.R. for du Pont Paint Co. to Gal rupe Constr. Co., 218 W. Church St., Zone 1. Approx. $75,000. Awarded 4/10. Beach Eng. & Constr. Co., contractor, engr.

Mass., New Bedford—GARAGE—Louis Herman, 558 Pleasant St., 2 story, 100x125 ft., brick steel, concrete, stone panel, dept. garage, Morgan County and Lime Sts., to Sullivan Foster, Inc., 44 Williams St., $80,000. U. Vincent Ferrer, engr. Turner, Brodie & Rounseville, 222 Union St., archts.

Mass., Springfield—FACTORY—Standard Electric Time Co., 89 Logan St., 1 story, 12,000 sq. ft. brick steel factory addn., Logan St. to Adams & Rixton Constr. Co., 1367 Main St., Approx. $80,000. Bids 3/25. CD 3/21.

Mo., Lees Summit—PLANT—R. B. Rule Sausage Co., Lees Summit, 28x80 ft. and 40x125 ft., reinforcing, fork insulation, sausage mfg. plant addn., alterations, Owner builds. Emil Bayer, 614 20 W. 9 St., Kansas City, Mo., archt.

N. Y., Corning—PILOT PLANT—Corning Glass Works, Walnut St., design and construction 3 story, steel brick pilot plant for impr. television bulbs, to H. K. Ferguson Co., 14 Rector St., New York. Approx. $500,000. Work underway. CD 1/16/47.

Pa., Dublin—FACTORY—H. Daroff & Son, Inc., Dublin, brick factory addn., to A. Luther Nash, 18 West St., Doylestown, $68,000. Fred Martin, Doylestown, archt.

R. I., Pawtucket—FACTORY—Royal Electric Co., to 90 Grand Ave., 1 story, 78x143 ft. brick steel factory addn., Grand Ave. to Central, Eng. & Constr. Co., 210 Main St., Providence. Approx. $75,000. Sumner Schein, 333 Washington St., Providence, archt.

Tex., Gilmer—AUTO SERVICE—Pounds Buick Co., Gilmer, auto service, parts, sales, Owner builds. Approx. $70,000. Adams & Adams, 518 W. Davis Sts., Dallas, archts.

Tex., Itasca—COTTON MILL—Itasca Cotton Mfg. Co., Jones estate, modernizing existing cotton mill, to Forces. Approx. $110,000.

Alaska, Fairbanks—PLANT—Alaska Diamond Co., Fairbanks, acetylene and oxygen plant, by labor, $250,000.

Que., Montreal—WAREHOUSE—W. Lawrence Tremblay, Ltd., 455 Craig St. W., 1 story, 46x75 ft. and extension, concrete, structural steel, brick ware house, to Brennan Constr. Ltd., 5441 Monkland Ave., $70,000. Lorimer & Sise, 444 W. Sherbrooke St., archts.

UNCLASSIFIED

LOW BIDDERS

Ill., Effingham—SWIMMING POOL—Effingham Park Bd., Effingham, Apr. 10, 40x82 ft. swimming pool, from Moutz & Oren, Effingham, $84,825. Est. $100,000. CD 3/20.

▲ N. Y., St. George—TERMINAL—Cons. Mutual & Atlantic, Pier A, North River, New York, Zone 4, Apr. 11, viaduct and main terminal bldg., 2 story, reinforced concrete, structural approach and Staten Island Ferry Terminal, Contr. 2612, from Geo. Crowley & Son & Kruge, Inc., 240 Park Ave., New York, Zone 17, $1,000,190. CD 3/28.

† North Dakota—TRANSFORMERS—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Apr. 4, from Denver Equipment Co., 17 St., Denver, Colo., item 2, 2 single pole, 3 cycle, 60 cycle circuit breaker for Bismarck substation, Garrison Diversion Proj., Transmission Div., Spec. 2925, $54,900. Item 38, four 115,000 volt circuit breakers for James town substation, $70,000. Item 12, three 115,000 volt circuit breakers for Devils Lake substation, $52,500. CD 2/28.

▲† North Dakota—TRANSMISSION LINES—Bureau Reclamation, Dpt. Interior, Bismarck, 219 miles, Garrison-Rugby-Devils Lake-Carrington-Jamestown 115 kv transmission line, Missouri River Basin Proj., Transmission Div., Spec. 2935, from Western Constr. Co. & Project, to 1641 Washington Rd., Los Angeles, Calif., $1,335,000. Est. $1,469,310. CD 3/7.

CONTRACTS AWARDED

▲ Nev., Las Vegas—RACE TRACK—Las Vegas Thoroughbred Racing Assoc., Joseph Smoot, pres., 900 S. 5 St., race track and facilities, grandstand and clubhouse, to McNeil Contr. Co., 586 Avalon Blvd., Los Angeles, Calif., Approx. $1,000,000. CD 1/23.

N. Y., New York—ELECTRICAL INSTALLATION—Port of New York Auth., 111 8 Ave., 2 story, electrical installation in West 179 St. tunnel and ventilation bldg., to Plymouth Electric Co., 21 E. 40 St., $138,750. Bids 4/3. CD 3/9.

Va., Blacksburg—UNDERGROUND STEAM TUNNEL—Virginia Polytechnic Institute, Blacksburg, underground steam pipe tunnels and mains from Burruss Hall to Dairy Husbandry Bldg., installing pipe, to A. L. Wright, Jr. & Co., 2510 High St., Portsmouth, $32,301. tunnel constr. to James J. Pantapas, Narrows, $76,301. Bids 3/24. CD 3/15.

PROPOSED PROJECTS

WATER SUPPLY

Kan., Olathe—City, City Hall, voted $265,000 bond, Apr. 14, water mains, purification plant, Payne & Newkirk, City Hall, engrs. CD 3/6.

Mass., Nahant—Town, Water Bd., Town Hall, WW system, 24 in. dia. water main, $105,000. Whitman & Howard, 89 Broad St., Boston, consult. engrs.

Tex., Kingsville—City, voted bonds, $1,000,000, soil, water storage tank, $75,000; water mains, $150,000; sewer mains, supply, etc., manholes, $150,000. CD 3/24.

Tex., Odessa—City, WW, $135,000. Kenneth E. Rummel, Jr., Courthouse, consult. engr. E. S. Martin, Box 3466, engr. CD 4/6.

Tex., Santa Anna—City, voted bonds, $60,000, Inc. 8 in. water distribution lines, $140,000; brick concrete pump station, $35,000. Freese & Nichols, 307 Burnett Bldg., Fort Worth, consult. engrs.

Wash., Lynden—City, City Hall, filter plant, $100,000. A. L. Cunningham & Assoc., Spalding Bldg., Portland, consult. engrs. Ed. Kuehler, city engr. CD 1/21.

▲ W. Va., Fairmont—City, City Bldg., pump, station, reservoir and filter plant, $1,200,000. Brandon Joyce & Small, 81 Orchard St., Keyser, consult. engrs. CD 2/9/49.

W. Va., Monongah—City, plans by Brandon Joyce & Small, 81 Orchard Ave., Keyser, 2 story, brick, filter plant and reservoir, $160,000.

Alaska, Wrangell—City, City Hall, water svc., $125,000. A. Erickson Ketchikan, consult. engr. CD 11/14/49.

Ont., Hamilton—City, J. F. Barry, Clk., booster pump station, extn., 100,000 gal. elevated water tank, Cochrane Rd. and Kings Forest Park, Approx. $104,500. W. L. McPhail, City Engr., engr. CD 7/30/49.

SEWERS, WASTE DISPOSAL

Calif., Los Angeles—Rd. Tujunga, Los Angeles Co., 501 Area, Henry J. Kaiser Co., Inc., Engrs., sanitary sewers in Mount Curve Ave., $300,000.

Kan., Ottawa—City, City Hall, voted $165,000 bonds, Apr. 4, sewage plant improv. CD 3/4.

Minn., St. Peter—City, Agneta E. Kuhl, Clk., sewage treatment plant, interceptor sewers, $125,000. Tisty, King & Day, 1509 Pioneer Bldg., St. Paul, engrs. CD 3/14/49.

Miss., Jackson—City, City Hall, sanitary sewer extens., Lynch Creek area, $350,000. Mallett & Assoc., Kirby F. Amite St., engrs.; sanitary sewer extens., Town Creek area, $300,000. Winchell C. Webb, First Federal Bldg., engr.; sanitary sewer extens., Fondren Creek Area, $350,000. W. F. Johnson, First Federal Bldg., engr.

N. M., Santa Fe—City, sewage treatment plant addn., $175,000; sewer line extens., $300,000. outfall sewer lines, $125,000. Herkenhoff & Turley, 223 Montezuma St., consult. engrs. Dennis W. Thornburg, city engr. CD 3/7.

N. C., Williamston—Town, 19,500 ft. 10 to 15 in. vitrified sewer lines, 20,000 lin. ft. 8 in. lateral sewers, $100,000. Henry L. & T. W. Rivers, Greenville, consult. engrs. 3/30.

O., Rockford—Village, sewage disposal program, $250,000. Question of bond issue to be voted in November 1949. Legal decision pending for submission of these bonds began before the Ohio State Legislature reduced requirement from 65% to 55% majority. CD 11/24.

Okla., Ada—City, voted bonds, sewage disposal plant, $375,000; sanitary sewer main extens., $545,000. Ralph Delamey, Ada, consult. engr. CD 3/7.

Tex., Ballaire—City, & 1st call bond election, storm sewers, Bush Ave., $175,000; Post Oak Rd., $200,000; Bellaire Blvd., $225,000; Cedar Bayou Rd. and Cedar Terrace, $75,000. CD 12/23.

Tex., Houston—Hoare & Dunnitt, 704 Garden Oaks, storm sewers, 227 area, south of W. 34 St., $50,000; sanitary sewers, $50,000. Shannon Eng. Co., 5414 Lang Dr., consult. engr.

Tex., Houston—C. E. King, 4110 Dennis St., sanitary sewers, $75,000, storm sewers and drainage, $65,000, southeast sect. of city, portion of Sect. 2, of South

Park and Jeff Holmes Rd. between Griggs Rd. and Chocolate Bayou.

Tex., Kilgore—City, voted bonds, sanitary sewer mains, $250,000; sewage disposal plant, $350,000. A. P. Noyes, 200 N. Martin St., consult. engr.

Tex., Kirbyville—City, voted bonds, sewer outfall line, $200,000; sewer lift station, disposal pump, unit, $175,000. CD 3/24.

Wash., Brewster—Town, Town Hall, treatment plant and 30,000 ft. of line, $100,000. J. W. Cleveland & Kramer & Assocs., 1901 1 Ave., Seattle, Zone 1, consult. engrs.

Alaska, Fairbanks—City, City Hall, 13,965 ft. sewers, pump, plant and lift stations, General Services Admin., Proj. 50-A-83, $184,150. Edgar S. Paxson, Eng. Service, Box 4683, consult. engr. J. Wilcox, City engr. CD 2/6.

Ont., Aylmer—City Council, T. L. Barnecott, mayor, sewage disposal sys., $200,000-$350,000. Ann Vertch, R. R. 1, Wilton Grove, engr. CD 1/24/44.

BRIDGES

▲ Md., Baltimore—City, Bureau Hys., 303 Municipal Bldg., Zone 2, bridge to carry Hanover Pkwy. over B. & O. R. R. tracks at Stockholm St., $2,500,000. Sandaus, Wemar, & Assn., 1021 N. Calvert St., consult. engrs. Jos. H. McKay, hy. engr.

Massachusetts—Commonwealth of Mass., Dpt. P. Wks., Boston.

Townsend, Lawrence and North Andover—3 bridges, $150,000. Sweeney, DeMig, Inc., 80 Boylston Sta., Boston, engr.

Ontario—Province of Ontario, Toronto.

Windsor—for the reconstruction of Hy. 10, $100,000. Dpt. Hys., Toronto, engr.

STREETS AND ROADS

Del., Wilmington—City, Directors Street & Sewers, 2nd City Hall, 1st Precinct, asph. sheet paving, Market St. from Front to 400 ft. S., $130,000. Edwin S. Koester, City Hall, 10 and King Sts., City engr.

Indiana—State Hy. Comm., Indianapolis.

Marion Co.—rock asph. repaving 2.5 mi. "Southeastern Ave., U. S. Rte. 52 and Indiana State Rd. 9.

rock asph. repaving 1.51 mi. Massachusetts Ave., U. S. Rte. 40.

bit. surface 1.51 mi. 38 St. west of Arlington Ave., Indiana State Rd. 431.

bit. surface 4 mi. E. Washington St. from Capitol Ave. to east city limits, R. Bower, City owner, ch. engr. CD 7/22/48.

Ia., Dakota City—Humboldt Co., grading, prov. 30 mi., $130,000. Howard S. Morley, Tallmadge, engr.

Ohio, State Hy. Dpt., Division 12, Broadway Ave., Cleveland.

Lake Co.—grading section of Route 6 and concrete to be, $750,000.

O., Ashland—City Council, Manders, mayor, re-surfacing 14 streets, $100,000.

Tex., Houston—S. E. King, 3110 Dennis St., street grade and paving, southeast sec. of City, portion of South Rice and W. Holcombe Blvd., between Union Rd. and Chocolate Bayou, $100,000.

Tex., Sabine—Jefferson Dr., Beaumont-Sabine road, and to Orange, asphaltic concrete, $350,000. Charles H. Davis, City owner, ch. engr.

Tex., South Houston—Town, voted bonds, street improv. and asph. paving, $175,000. Freese, Voshell & Taylor, National Standard Bldg., Houston, consult. engrs. CD 3/17.

Wash., Port Angeles—City, City Hall, 24 ft. c. conc. with high shoulders on Units 1 to Rayonier mills, Race Lauridsen to Camlane, Peabody B to 1, Cherry B to 2 and west on 2 to Marine Dr., Cedar from B to Marine Dr., Tumwater C to Marine Dr., B. Lincoln to Race, $500,000. H. Sievers, city engr. CD 12/13/45.

Wash., Seattle—City, County, City Bldg., Zone 4, re-surfacing streets, Arr. N-A, Item 3, no. 2, $366,000. F. W. Hawe, city engr.

Wash., Tacoma—City, City Hall, resurfacing Alaskan Rd., $398,320. C. E. Morris, city engr.

Alaska, Anchorage—City, City Hall, street improv., $113,450. Frank Ellis, City engr.

Alta., Lethbridge—Municipality, 43 mi. H. surfacing and gutters, $100,000.

B. C., Alberni—City, City Hall, grading, resurfacing, curbs, about 5½ mi. streets, $100,000.

EARTHWORK, WATERWAYS

New Jersey—State Dpt. Conservation & Economic Development, Div. Board of Riparian Grants, Trenton, dredging Sandy Hook Bay, Widewood, $85,000; dredging Sunset Lake, Wildwood Crest, Approx. $28,000.

▲† Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, 7 mi. railway track removal and relocation and allied facilities, $1,500,000; county road construction, $175,000; track and allied facilities removal and reconstruction, $750,000; railway track and facilities removal and reconstruction, $750,000. (Colin Co., due to coming inundation of grounds due to Lavon Dam now under construction. CD 6/14/44.

▲ Tex., Galveston—Galveston Co., Courthouse, 3 mi. seawall exten., westward from Galveston, $6,500,000; open ditch drainage, $150,000. George E. McCallum, engr. CD 4/28/49.

AIRPORTS

Ind., South Cent.—MAINTENANCE and CONTROL BLDG., Atlantic Rd., Anderson, A. McLaren, pres., Airport Terminal Bldg., plans completed by R. A. Worden & Co., Anderson, 312 W. Dudley Ave., 1 story, 44x44 ft., brick, concrete, structural steel, rein.-con., maintenance and control bldg., $80,000. CD 12/26/49.

Kan., Lawrence—AIRPORT IMPRVS.—City, City Hall, municipal airport improv., $150,000. J. C. Harper, city engr.

Kan., Salina—AIRPORT IMPRVS.—City, City Hall, municipal airport improv., $240,000. Wilson & Co., Box 917, engrs.

Kan., Topeka—AIRPORT IMPRVS.—City, City Hall, municipal airport improv., $400,000. W. E. Baldry, city engr.

Kan., Wichita—AIRPORT IMPRVS.—City, City Hall, municipal airport improv., $240,000. CD 9/18/48.

Mich., Detroit—SERVICE SHOP—Wayne Co. Rd. Comm., 3800 Cadillac Tower, plans by Giffels & Vallet, Inc., archts., 1000 Marquette Bldg., motor service shop, 2-unit-truck station, aircraft control and warning bldg., and administration headquarters.

Mo., Jefferson City—AIRPORT IMPRVS.—City, City Hall, airport improv., $200,000. CD 11/20/48.

Mo., Joplin—AIRPORT IMPRVS.—City, City Hall, airport improv., $130,000.

Mo., Poplar Bluffs—AIRPORT IMPRVS.—City, City Hall, airport improv., $165,000. CD 1/8/45.

Mo., Sedalia—AIRPORT IMPRVS.—City, City Hall, airport improv., $150,000. CD 1/31/45.

Mo., Sikeston—AIRPORT IMPRVS.—City, City Hall, airport improv., $920,000.

Neb., Chadron—AIRPORT—City, airport improv., $156,000. H. D. Meigs, city engr. CD 1/8/45.

Neb., Columbus—AIRPORT—City, airport improv., $140,000. Earl Gair, city engr. CD 3/10.

Ore., Roseburg—City, City Hall, $200,000 bond election, line 4, airport improv. Arthur Boyer, City engr.

Wash., Seattle—FREIGHT DEPOT—King Co., County City Bldg., Seattle, Zone 4, air freight depot at Boeing Field, $100,000. Stevenson & Raines, Olympic National Bldg., consult. engrs. CD 9/14/45.

LATIN AMERICA

Mexico, Monterrey—Bank of Mexico, S. A., S. de Hays e Mexico, D.F., plans branch bldg., $350,000.

Mexico, Tampico—Harry Curtis and Lic. Raul L. Rechy, Tampico Chamber of Commerce, Tampico, Tamps., plans fish seafood cannery, $500,000.

PUBLIC BUILDINGS

Ark., Arkadelphia—HOMES—Arkadelphia Housing Auth., Arkadelphia, plans by Weaver & Stowers, Commercial Natl. Bank Bldg., Little Rock, 75 homes, $700,000. CD 3/4.

Calif., Compton—SCHOOL FACILITIES—City School Dist., 604 S. Tamarind St., voted $425,000 bonds, school facilities. H. L. Gogerty, 3123 W. 8 St., Los Angeles, archt. CD 11/11.

▲ Calif., Fontana—School, Chaffey Union High School Dist., Ontario, plans by A. C. & A. Rible, 625 E. Westmoreland Ave., Los Angeles, high school, $1,700,000. CD 4/7.

▲ Calif., Santa Ana—SCHOOL FACILITIES—Santa Ana Elementary School Dist., $2,756,000 bond election, June 6, school facilities.

Colo., Colorado Springs—SCHOOL—Colorado State Institution for Deaf and Blind, Colorado Springs, plans by Edward J. Bunts, 470 First Natl. Bank Bldg., $500,000.

▲ Conn., New Haven—HOUSING, City of New Haven Housing Auth., 1948 Church St., plans by Douglas Orr, 111 Whitney Ave. and Joseph Della Valle & Tilney Pedersen, MacMaster & Granberry, 111 Whitney Ave., 300 home factory units, Seminole Farm, $2,500,000. CD 10/25.

Conn., Torrington—CIVIC CENTER—City, John H. Thompson, Inc. Bldg., Comm., plans by Carl Victor Johnson, 1 College Ave., Office steel war memorial building, civic center, $500,000. CD 2/10/47.

Del., Claymont—SCHOOL—Brandywine Special School Dist., Claymont, plans by Maxwell & Du Pont, 704 Delaware Ave., Wilmington, school, $400,000. CD

▲† D. C., Wash.—DOMICILIARY, etc.—Soldiers Home, Rock Creek Church Rd. at Upshur St. N.W., building program, incl. 150 bed domiciliary bldg., 200 bed nurses' home and other improv., Approx. $15,000,000.

▲ Fla., Jacksonville—GOVERNMENT and CIVIC CENTER—Duval Co. Improv. Comm., P. O. Box 1793, Tallahassee, government and civic center, $2,435,000.

Idaho, Caldwell—HOUSING—Caldwell Housing Auth., Caldwell, 75 housing units, $600,000.

Ill., Collinsville—SCHOOL—Collinsville School Dist. #10, Rd. Educ., voted $450,000 bonds, brick, concrete, steel school. Albert M. Goedde, 1st Natl. Bank Bldg., East St. Louis, archt.

Ill., East St. Louis—HOUSING—St. Clair Housing Auth., c/o James E. Hayes, executive dir., 6 St. and Ohio Ave., plans by Kennedy & Spencer, 1st Natl. Bank Bldg., 700 units, brick, concrete, low rent housing. Approx. $560,000. CD 12/46.

Ind., Michigan City—DORMITORY—State Div. P. Wks. & Supply, W. K. Myberg, Jr., 404 State House, Indianapolis, plans by L. Crosby Bernard, 7241 Forest Ave., Hammond, 3 story, 87x134 ft., brick, structural steel, rein.-con. dormitory and administration bldg. addn., State Prison, $400,000. CD 2/27/48.

Kan., Kansas City—ADMINISTRATION—State Bd. Regents, National Bank of Topeka, Topeka, plans by C. L. Marshall, state archt., Topeka, administration bldg., Kansas State School for Blind, $430,000.

▲ Kan., Manhattan—SCHOOL—Bd. Educ., voted $2,115,000 bonds, high school. F. O. Wolfenbarger, Ulrich Bldg., Manhattan, archt. CD 1/24.

Md., Brunswick—SCHOOL—Bd. Educ., Frederick Co., 125 E. Church St., Frederick, plans by Paul H. Kea, Professional Bldg., Hagerstown, brick, cinder block, steel, concrete school, $400,000.

Mass., Brockton—SCHOOL—City, E. A. Nelson, supt. Schools, City Hall, plans by Wm. Beal Sum, 155 Devonshire St., Boston, 1 story, bonnet, West Side Junior High School, $900,000. CD 1/30.

▲ Mass., Cambridge—HOUSING—City of Cambridge Housing Auth., 116 Massachusetts Ave., plans by Eda, Sears Reid & Assoc., 227 State St., Boston, 200 unit garden apartment, State Housing Proj., Cambridge 200-6, $2,000,000. CD 1/26.

▲ Mich., Ann Arbor—COURTHOUSE—Comrs. Washtenaw Co., Courthouse, defeated bonds Apr. 3, county courthouse, Approx. $2,600,000. CD 1/18.

▲ N. J., Camden—HOUSING—Housing Auth. of City of Camden, 13 and Pine Sts., plans by Edwards & Green, Broadway and Camden Sts., housing in 3200 block Westfield Ave., $1,400,000; plans by Roger S. MacNelly, 101 N. 7 St., housing 10 St., $2,400,000. CD 10/31/46.

O., Barberton—MUNICIPAL, City defeated bonds, Nov. 8, municipal bldg., $450,000. CD 6/9.

† O., Garfield Heights—ARMORY, etc.—Second Army of Ohio Military Dist., 530 Rockefeller Bldg., Columbus, Reserve Corp Armory and Garages, $400,000.

Pa., Emlenville—BUILDING—General State Auth., 18 and Herr Sts., Harrisburg, patients' bldg. alterations, modernization, at Limbert-ville State Hospital, $569,400; construct quarters for female employees, $357,600. A. F. Dunn, c/o owner, ch. engr.

Tex., Albany—SCHOOL—Albany Independent School Dist., Albany, voted bonds, masonry high school, $250,000; masonry grade school, $250,000. W. W. Caudill, F. E. 32, College Station, archt.

▲ Tex., Austin—HOUSING—Austin Housing Auth., W. W. Stewart, secy., 302 Chalmers St., plans by Jessen, Jessen, Millhouse & Greeven, 2816 N. Guadalupe St., 60 unit, Santa Rita Housing, $485,000; plans by Kell, Granger & Watling, 502 E. 5 St., 160 unit, Chalmers Housing, $1,240,000; plans by Giesecke, Kuehne & Brooks, 121 E. 8 St., 300 unit, Rosewood Housing, $2,265,000. CD 9/15.

Tex., Corpus Christi—SCHOOLS—Corpus Christi Independent School Dist., Corpus Christi, voted bonds, 20 classroom addn. to Carroll Lane-Lamar, West Tract, $300,000. Brook & Anderson Jones Bldg., D. Hamon, Medical Professional Bldg., and O. V. Tarver, 5140 Floyd St., archts., 25 classroom school, Lindenland tract, $400,000. Smyth & Smyth, 1806 S. Alameda St., archts. CD 3/20.

Tex., Dayton—HIGH SCHOOL—Dayton Independent School Dist., Dayton, plans by Emory S. White, M & W Bldg., Houston, high school and remodeling, $450,000. CD 2/20.

▲ Tex., Galveston—SCHOOLS—Galveston Public Schools, c/o Bd. Trustees, Alamo 5200 Nix St., voted bonds Negro High School, 125,000 sq. ft. floor space, north of Avenue L, $1,650,000; high school for whites, 200,000 sq. ft. floor space off Avenue O, Lasker Park, Avenue P½, $2,350,000. Preston M. Geren, Neil P. Anderson Bldg., Fort Worth, archt. R. R. Rapp, Galveston Bldg., consult. archt. CD 1/2.

Tex., Wharton—JUNIOR COLLEGE—Wharton County Junior College, Wharton, voted bonds, Junior College Bldg., $400,000. CD 1/20.

▲ Va., Halifax—HIGH SCHOOL—Halifax Co. and South Boston, Halifax consolidated high school project, between South Boston and Halifax on Hy. Route 58, $1,000,000.

Wis., Appleton—SCHOOL—Bd. Educ., Appleton, plans by Mowrey Lee Allen, Zuelke Bldg., Appleton, 1 and 2 story, L-shaped Franklin School, $800,000.

Alaska, Cordova—HYDRO-ELECTRIC PLANT—City, City Hall, hydro-electric plant, $500,000.

Alta., Edmonton—LIBRARY—University of Alberta, Edmonton, Rutherford Library addn., $480,000.

N. B., Fredericton—HOSPITAL WING—Victoria Hospital Rd., Fredericton, polio wing, $800,000.

▲ Newfoundland, St. John's—HOMES—Municipality, slum clearings, clearance and constructing new homes, $3,000,000.

Ont., Ottawa—GYMNASIUM, etc.—Collegiate Institute Bd., Elgin Chambers, converting gymnasium into cafeteria, new gymnasium, workshop, new heating sys. at Lisgar Collegiate, $485,000; high school on 16 acre site, near Base Line Rd., $250,000.

▲ Ont., Toronto—SCHOOL—Toronto Bd. Educ., C. H. R. Fuller, bus. admin., 155 College St., plans by C. E. C. Dyson, c/o owner, Central Technical School, addns., alterations, Harbord and Lippincott Sts., Approx. $1,500,000. CD 12/15/49.

Ont., Weston (Toronto)—SCHOOL—Rd. Educ. Rely St., Weston, collegiate and vocational school addn. Approx. $420,000.

COMMERCIAL BUILDINGS

Calif., Beverly Hills—MEDICAL—Beverly Hills Clinic c/o Wm. L. Pereira, 7421 Beverly Blvd., Los Angeles, 4 story, 60,000 sq. ft. medical bldg. $700,000.

▲ Conn., New Haven—OFFICE—Security Insurance Co., 170 Whitney Ave., plans by Douglas Orr, 233 Whitney Ave., 7 story brick, sheet, concrete office addn., Whitney Ave. $2,000,000. CD 8-20

Kan., Ottawa—HOSPITAL—Ransom Memorial Hospital, Ottawa, plans by J. W. Radotinsky, 1401 Fairfax Trfwy., Kansas City, Kan., hospital addn. $400,000.

Ky., Louisville—SCHOOL—System of Eight Shopping Ctrs. and Madison, Ind., shopping ctr. by Thos. Nash & Associates, Home Life Bldg., Louisville, 2 schools, one 66 acre tract at new ctr. of Shepherdsville Rd. and Indian Trail. $450,000. Southern Eng. Co., 1419 W. Main St., engr.

Ky., Louisville—SHOPPING CENTER—H. B. Tigrett, 2100 Lowell Ave., Zone 4, plans by Walter Blaker & Joseph Potts, Finance Bldg., Zone 2, 7 store shopping center, 2 mi. southeast of city limits. $750,000.

La., Shreveport—APARTMENT—P. A. Hunter & Assoc., 4007 Texarkana St., Houston, Tex., 150 apartment units. $750,000.

Minn., Collegeville—DORMITORY—St. John's University, Collegeville, plans by H. V. McCosh, 616 Northstar Bldg., Minneapolis, 4 story, 47x200 ft. dormitory. $600,000. CD 12-14

▲ Mo., Clayton (St. Louis, S. P. O.)—STORE—Thomas W. Lamont, Inc., Charles G. Andrews, pres., 410 N. 8th St., St. Louis, Zone 1, 7 unit, concrete, precast, aggregate exposed, store addn., 6 stores, Bonhomme and Forsyth Blvd. and Parkside Dr. $1,000,000.

Mo., St. Joseph—THEATER—Owner not let, J. V. Guire, 412 N. Noyes Blvd., brick, concrete, steel, 1500 capacity, theatre bldg. $500,000.

▲ Mo., St. Louis—APARTMENT—Essex House, c/o Duncan Co., 4401 Manchester Ave., Zone 10, plans by Cox & Weinel, 3837 W. Pine Blvd., St. Louis, Zone 8, 12 story, bsmt., 192 unit, brick, steel, concrete apartment, Kingshighway Blvd., between Northwood and Rosebury Aves. $3,900,000.

Neb., O'Neill—HOSPITAL—Dr. Anthony Hospital, O'Neill, plans by F. N. McNett, Grand Island, hospital. $400,000.

▲ N. Y., Forest Hills—APARTMENT—Queens 69 Corp., c/o Charles Spindler, archt., 165 Montague St., Brooklyn, Zone 2, 8 story apartment, Queens Blvd., between 69 Ave. and 69 Rd. $1,100,000.

O., Springfield—CHAPEL—Wittenberg College, Chapel, subscription, pres., Springfield, plans by Ralph H. Hamman, Jr., W. High St., and Redman, Gillett & Morris, 516 McMerton St., Toledo, college chapel. Approx. $500,000. CD 7-27-50

Okla., Tulsa—EDUCATIONAL—First Baptist Church, 409 Boulder St., educational bldg. $800,000.

Pa., Butler—HOUSING—Louis Markofer, 829 Industry St., Pittsburgh, plans by C. A. Lake, 205 High-land Terrace, Shaler Twp., Pittsburgh, 4 story, basement, 16 brick veneer buildings, Ivy Mar Village. $850,000. CD 7-27

Pa., Erie—APARTMENT—Connecticut Ave. Plant, Inc., 1st floor, 55 Perry Sq., plans by Philip Freedman, 221 N. Negley Ave., Pittsburgh, two 3 story, basement, brick veneer apartments. $300,000.

Pa., Warren—APARTMENT—Warren Apartments, Inc., Penn Circle, Bradford, plans by Philip P. Freedman, 221 N. Negley Ave., Pittsburgh, 4 story, basement, 100x100 ft. brick on tile apartment. $400,000.

S. D., Sioux Falls—HOSPITAL—Co-plied, Children's Hospital & School Organization, Sioux Falls, plans by Hugh Stubbins & Fetzer, 161 Boyce Greeley Bldg., hospital. $500,000. CD 4-28

S. D., Sioux Falls—CHURCH—First Baptist Church, 22 and Cowell Sts., plans by Hugh Stubbins & Fetzer, 161 Boyce Greeley Bldg., church. $500,000. CD 4

Tenn., Memphis—CHURCH—Union Avenue Baptist Church, c/o Walter Nelson, archt., Sterick Bldg., church, archt. $400,000.

Tex., Abilene—DWELLINGS—Raymond Thomason, Abilene, 100 frame dwellings, concrete pier foundations. $700,000.

Tex., Dallas—MEDICAL—Bush Jones, Jr., and Albert Jones, 5745 Velasco St., plans by J. A. Pitzinger, Southland Life Bldg., 2 story, basement, 100x165 ft., concrete, steel medical bldg., concrete piers and beams, 2 electric elevators, air conditioning. $500,000.

▲ Tex., Dallas—HOSPITAL—Methodist Hospital of Dallas, 301 W. Colorado St., hospital. $1,000,000.

▲ Tex., Houston—DWELLINGS—Brace & Carrion, 706 Garden Oaks St., masonry dwellings, slab fdns. on 575 acre tract in Memorial Dr. area, adj. to Camp Hudson. $8,500,000.

Tex., LaPorte—SEMINARY—St. Marys Seminary, 4615 Red St., seminary. $750,000.

▲ Tex., Laredo—HOSPITAL—Mercy Hospital, Laredo, plans by Page, Southerland & Page, 402 West Ave., Austin, 5 story, bsmt., 150 bed hospital. $2,000,000. CD 4-10

Tex., Pharr—HOTEL—Bentsen Bros., Pharr, 57 room, 2 story, tourist, Texas Hotel. $400,000.

FOUNDATIONS

PRETEST UNDERPINNING
CONCRETE-STEEL PILES
MASS CONCRETE CONSTRUCTION
HEAVY SHORING
DRILLED-IN CAISSONS

Send for catalogs descriptive of the latest foundation types and methods

SPENCER, WHITE & PRENTIS, INC.
10 EAST 40th ST. NEW YORK 16, N. Y.
602 HAMMOND BLDG. DETROIT 26, MICH.

MOTT Diamond Core Drilling Contractors

FOUNDATION TESTING
for
Bridges, Dams, Heavy Structures
PRESSURE GROUTING

MFR'S DIAMOND & SHOT CORE DRILLS, GROUT MIXING MACHINES, PACKERS AND GROUT PUMPS

MOTT CORE DRILLING CO.
HUNTINGTON, W. VA.

The BELMONT IRON WORKS

Engineers — Fabricators — Erectors
Contractors — Exporters
Cable address—Beliron

STRUCTURAL STEEL
BUILDINGS & BRIDGES
RIVETED — ARC WELDED
Shops — Eddystone

PHILADELPHIA
Main Office
Philadelphia
25, Pa.

ROYERSFORD
New York Office
44 Whitehall St.,
N. Y. 4, N. Y.

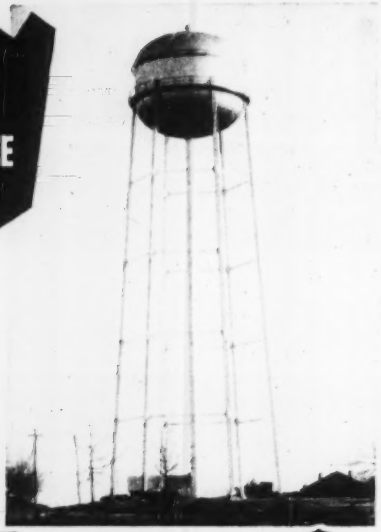
Stang WELLPOINT SYSTEM

For
KNOW-HOW
•
ENGINEERING
•
SUPERVISION
•
EQUIPMENT
•
to keep jobs
DRY

The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.

JOHN W. STANG CORPORATION
2 Broadway, New York 4, N. Y. — 2123 S. 56th St., Omaha, Nebr. — 8221 Atlantic Ave., P.O. Box 631, Bell, Cal.

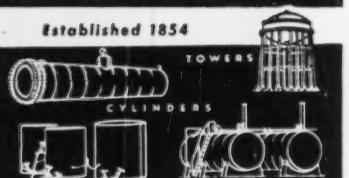
DEPENDABLE WATER SERVICE



• For almost a century Cole elevated tanks have provided a dependable water supply for mills and communities. Cole quality is assured by careful, experienced designing and watchful supervision from blueprint to finished tank. Send us your inquiries for tanks from 5,000 to 2,000,000 gallons—stating capacity; height to bottom, and location. Write for latest Cole catalog—"Tank Talk."

R.D. COLE
MANUFACTURING CO.
NEWNAN, GA.

Established 1854



Diamond Core
Drilling
CORE BORINGS
for Foundations, Dams, Bridges and all Heavy Structures
GROUT HOLES
Tinney Drilling Co.
Grafton, W. Va.

"GUNITE" CONCRETE
(Since 1915)
FOR • STEEL PLATE LINING • STEEL ENCASEMENT • BUILDING NEW WALLS • LINING WATER RESERVOIRS, TUNNELS AND SEWERS • PLATE LINING OF STEEL STACKS, BUNKERS, DUCTS • REPAIR OF DISINTEGRATED CONCRETE AND MASONRY • CANAL, DITCH AND DRAIN LINING
GUNITE CONCRETE & CONST. CO.
1301 Woodswether Rd., Kansas City 6, Mo.
District Branch Offices
R. N. Turner, Dist. Mgr., 228 No. LaSalle St., Chicago 1, Ill.; B. H. Mueller, Dist. Mgr., 6625 Delmar Blvd., University City, (St. Louis), Mo.; Philip D. Barnard, Dist. Mgr. 2036 Addison, Houston 5, Tex.
Branch Offices: Denver, Dallas, New Orleans
See our catalog in Sweet's

UNDERPINNING AND FOUNDATION CO
FOUNDED 1909

FOUNDATIONS
PILES - CAISSONS
UNDERPINNING
SHAFTS - TUNNELS
COFFERDAMS
No Job Too Large - None Too Small
ENGINEERS & CONTRACTORS
155 EAST 44th STREET, NEW YORK

INDUSTRIAL BUILDINGS

Colo., Pueblo—FOUNDRY—Triplex Corp. of America, Pueblo, foundry, $300,000.

Ky., Louisville—SHOP—Louisville & Nashville R.R. Co., C. H. Blackman, ch. engr., 908 St. and Broadway, plans by J. C. Hales, c/o owner, diesel shop addn., $400,000.

La., Baton Rouge—PLANT—Capitol Industries, Inc., c/o Ray E. Wallace, 1560 Stanford Ave., meat packing plant, $500,000.

N. J., Trenton—GARAGE—Charles N. Schrager, Inc., 220 E. Hanover St., plans by Louis S. Kaplan, 25 N. Montgomery St., garage, $350,000.

Tex., San Antonio—MOTOR SALES and STORAGE—Goad Motor Co., 917 Lexington St., addn., masonry motor sales and storage, $300,000.

▲ Tex., Texas City—PLANT—Monsanto Chemical Co. & American Viscose Co., Texas City, nylon type fabric mfg. plant, fabric to be known as "chemstrand"; Approx. $35,000,000.

Wis., Sturgeon Bay—RECEIVING STATION—Lake to Lake Dairy Cooperative, 917 S. 8 St., Manitowoc, plans by Foeller, Schober, Verners, Safford & Lann, 330 Pine St., Green Bay, dairy receiving station, $550,000.

▲ B. C., Vancouver—PLANT—Rowater Corp., Corner Brook, Newfoundland, pulp and paper plant, Approx. $2,500,000.

▲ Ont., New Toronto—PLANT—British Oxygen Canada Ltd., c/o British Oxygen Co. Ltd., London, England, plant construction, $1,000,000 with equip.

▲ Ont., Oshawa—WAREHOUSE—General Motors of Canada Ltd., Oshawa, central parts distribution warehouse on southeastern outskirts of city, Approx. $3,000,000. CD 12/19.

Que., Three Rivers—PLANT—Canadian Westinghouse Ltd., 286 Sanford Ave. N., Hamilton, mfg. plant, in west end of city, Approx. $400,000.

UNCLASSIFIED

▲ Ala., Mobile—BERTHS—Dist. State Docks & Terminal, Mobile Berths 1, 2, 3, Proj. 2-P-1005, $2,565,000. J. P. Converse & Co., P. O. Box 1084, consult. engrs. CD 11/1/48.

Calif., Long Beach—WHARF, etc.—Procter & Gamble Mfg. Co., 1601 W. 7 St., raise wharf and build rock dike, $100,000. J. H. Davies, 210 E. 7 St., consult. engrs.

Illinois—RURAL DISTRIBUTION LINES—Clinton County Electric Co-operative, J. H. Heimann, mgr., Breese, addn'l. rural distr. lines in Clinton Co., incl. poles, $177,000.

Indiana—RURAL DISTRIBUTION LINES—Clark Co. Rural Electric Membership Corp., Sellersburg, 110 mi. rural distr. lines, sys. improv., Clark Co., $350,000. CD 12/1/47.

Ind., Ft. Wayne—DRIVE-IN THEATER—Walter J. Erle, Sturgis, 700 car capacity drive-in theater, east of Fort Wayne on 10 acre tract near junction of U. S. Rts. 30 and 24, $125,000.

Minnesota—RURAL DISTRIBUTION LINES—Carlton Co. Co-operative Power Assoc., Kettle River, 231 mi. rural distr. lines, 28 mi. 69 kv. transmission lines, sys. improv., Carlton Co., $715,000.

Minnesota—RURAL DISTRIBUTION LINES—Minnkota Power Co-operative, Grand Forks, N. D., 143 mi. 69 kv. transmission line, incl. 34 mi. 4/0 A.C.S.R. conductor, Class 2 poles, Bagley-Bemidji, 14 mi. 1/0 A.C.S.R. conductor, Class 3 poles, distribution lines, Approx. $100,000, A. L. Coburn, Jr., c/o owner engr.

Miss., New Albany—NATURAL GAS LINES, etc.—City, City Hall, bond election May 8, natural gas and transmission lines, $710,000. Forter, Barry & Switzer, 545 Lafayette St., Baton Rouge, consult. engrs.

Montana—RURAL DISTRIBUTION LINES—Flint Creek Electric Co-operative Assoc., Polson, 315 mi. rural distr. lines, 13.9 mi. 34.5 kv. transmission line, Elmo Co., $110,000. CD 5/20.

South Carolina—RURAL DISTRIBUTION LINES—Laurens Electric Co-operative, Laurens, 98 mi. rural distr. lines and sys. improv., Laurens Co., $225,000.

South Dakota—RURAL DISTRIBUTION LINES—Lake Region Electric Assn., Webster, rural distr. lines, Day Co., $700,000. Banister Eng. Co., 2320 University Ave., St. Paul, Minn., consult. engr. CD 7/16/48.

▲ Texas—PIPE LINES—Tennessee Gas Transmission Co., Commerce Bldg., Houston, natural gas pipe lines, 24 mi. Alice area, Jim Wells Co., $275,000; 22 mi. Refugio area, Refugio Co., $290,000; 15 mi. near Robstown, Nueces Co., $240,000; 12 mi. Victoria area, Victoria Co., $190,000; 17 mi. Wharton, Wharton Co., $260,000; natural gas compressor units, Jasper Co., $325,000; Cleveland, $150,000; East Bernard, $175,000; Agua Dulce, $250,000.

Tex., Alvin—GAS PLANT—City, E. A. Richards, mayor, voted bonds, natural gas plant and distr. sys., $300,000. Fred Martin, 7240 Dixie Dr., consult. engr. CD 9/30.

Va., Martinsville—ELECTRICAL DISTRIBUTION—City, electrical distr. sys. extn., $100,000.

Wash., Aberdeen—ATHLETIC CENTER—St. Mary's Parish, Aberdeen, athletic center, $150,000.

▲ Ont., Mimico—RAILYARD EXPANSION—Canadian National Railways, 160 Wash St., Montreal, Que., railyard expansion, 20 tracks, moving Mimico station to new site, $2,600,000. CD 11/15/48.

CONSTRUCTION REPORTS–Second Section

WATER SUPPLY

BIDS ASKED

Minn., Pierz—B.A. 5-2—Village, L. J. Pleimesberger, ... tank, ... water ... steel tank, water ... deep well, turbine pump, $53,000. Plans ... deposit $10. Bettenburg, Townland & Sjoste, 2437 Marshall Ave., St. Paul, engrs.

N. Y., Rochester—B.A. 5-2—At office Fred W. Evett, ... purch. asst., City Hall, to 2 p.m. ... 24 ... 48,500 ... 24 ... 48,000 ... 24 ... 48,000 ... 24 ... 48,000

0.464 mi, Edsel Ford Expressway from Martin Ave. east to C. & O. Ry. Crossing, in Detroit, Proj. UI 82-64 C-1 31(01-39)(243), Wayne Co.; from Junius Parrish & Son Co., 702 Transportation Bldg., and Sugden & Sivier, Inc., 2323 E. 8 Mile Rd., Detroit, $820,162***rigid c. conc. median strip and concrete curb and gutter 0.736 mi, Edsel Ford Expressway from Longo Ave. East to Martin Ave., Proj. UI 82-64, C 12 (UI-39)(244), Wayne Co.; from Louis Garavaglia, L. A. Davidson & Denton Constr. Co., Centerline, $1,379,295. CD 3/30.

New Hampshire—State Hy. Dpt., Concord, grading, drainage, surf. treated gravel 2.27 mi, U. S. 3, Proj. No. F-I238 (7) towns of Lincoln and Franconia, from Landers & Griffin Inc., 800 Islington St., Portsmouth, $156,697. CD 8/25/44.

▲ New Jersey—New Jersey Turnpike Auth., War Memorial Bldg., Trenton, Contr. 15, grading, drainage 3.8 mi, new superhighway from Weigands Lane in Secaucus to Bridge over New York, Susquehanna & Western R.R. yards in Ridgefield, etc., Bergen Co., from George M. Brewster & Son, 275 W. Fort Lee Rd., Bogota, N. J., $6,890,082. CD 3/29.

N. Y., Yonkers—At Office Frank Van Bloom, sec., Ed., Contract & Supply, 316 City Hall, Apr. 3, receiving, grading, and otherwise improving Chicken Island and access streets in Hudson waters of Chicken Island, from Dinkelspiel, Inc., Canal St., Mt. Vernon, $132,749. CD 3/23.

▲ Tennessee—State Hy. Dpt., Nashville, Apr. 14, from Stacy Bros., Johnson City, E. conc. paving, 0.265 mi, State Hy. 81 in city of Kingsport, from Walnut St. and extend, to the junction of State Hy. 1 and Shadrach St., Proj. No. S-4509-121, Sullivan Co., \$57,999, curb and gutter, sidewalk and c. conc. paving 0.822 mi, section of State Hy. 50 from point 530 ft. west of west city limits to courthouse square in Fayetteville, Proj. No. F-055-1-(2), Lincoln Co., \$171,262 ***walks and c. conc. paving (incl. integral curbs) 0.394 mi, section of State Route No. 20 in Sevierville from south city limits and extend to Square, Proj. No. S-4509-121-C, Sevier Co., \$135,723 ***from John L. Brawley, Shelbyville, stone, gravel or crushed stone surf. construction, one bridge 4,015 mi, on Secondary Hy. 6174 between Clifton and Linden from point 1 mi. north of White Oak Creek and extend, to Legal Creek bridge, Proj. No. S-6174-(3), Perry Co., \$48,468, gravel, chert or crushed stone surf. 7.137 mi, sect. of Secondary Hy. 4250 from State Route No. 1 at Waverly and extend to Shady Grove approx. 1 mi. west of Spurlock, Proj. No. S-4250-12, White Co., \$52,422.

from Bowyer & Johnson, Jackson, grav., chert or crushed stone surf., 2.914 mi, construct 4 bridges on sect. of Secondary Hy. 8361 from Henderson and extend, towards Milton, Proj. No. S-8061-121, Chester Co., \$106,984; grav., chert or crushed stone surf., 5.594 mi, construct 4 bridges on sect. of Secondary Hy. 8307 from Troy and extend, to State Route 5 at Troy, Proj. No. S-8061-121, Obion Co., \$93,697***from Southern Constr. Co., Lee Hy., Chattanooga, grav., chert or crushed stone surf. 6.144 mi, sect. of Secondary Hy. 4252 from State Route 28 in Crossville and extend, 6.164 mi. towards Genesis, Proj. No. S-4252-121, Cumberland Co., \$57,945***from Fortson James Co., Dyersburg, grading, drainage, 9.143 mi, construct 10 bridges and gravel base on sect. of State Hy. 22 from Dayton and extend, to State Route 5, 11¼ mi. north, Proj. No. S-022-2-(2), Union Co., \$168,837***from Knoxville Constr. Co., River Terminal Rd., Knoxville, widen, bit. materials resurf. and construct concrete curb and gutter on left side only of 1.417 mi. sect. of State Hys. 33 and No. 71 on Henley St. in Knoxville, from Montvue Rd. south to Knoxville city limits and extend, to the Knoxville city limits at Young Ave., Proj. No. SAP 154 E, Knox Co., \$86,017.

from Pullen & Owens, 3rd Natl. Bank Bldg., Nashville, crushed stone, or gravel or sheet surf. 3.048 mi. sect. of non-system highway from Temperance Hall Rd. (approx. 9 mi. east of Alexandria) and extend, to Smithville, Proj. No. SAP-273 A, DeKalb Co., \$143,470***from Memphis Stone & Gravel Co., Exchange Bldg., Memphis, bit. materials resurf. 1.424 mi. sect. of State Hy. 24 from point 0.4 mi. southeast of Mt. Kinsley and extend, to Cane Tyson, Proj. No. SAP-142 F, Carroll and Henry Counties, \$124,115***from Wright Contg. Co., 504 25 Ave., Columbus, Ga., widen, bit. materials resurf. 6.348 mi. sect of State Hy. 45 and sect. of Secondary Hy. from Hy. 45 at Martin to Alamo and from Nashville and extend, from the Old Hickory Bridge and through Old Hickory to end of existing paving, Proj. No. SAP 19 A, Davidson Co., \$164,507***from Summers-Taylor Paving Co., Johnson City, crushed stone base 7.701 mi. sect. of Secondary Hy. 2303 from State Route No. 34 in Jonesboro extend, to State Route No. 3 mi north of the junction of State Routes 34 and 36, Proj. No. S-2383-121, Washington Co., \$102,990.

from A. W. Caldwell & Son, Ashland City, gravel, chert or crushed stone surf. 5.746 mi. sect. of Secondary Hy. 6201 from Bigby Rd. south of Columbia and extend, to Giles Co. line, Proj. No. S-6201 (2), Maury Co., \$72,024***from Marion Constr. Co., Cottonwood Lane, Nashville, chert, gravel or crushed stone surf. 7.746 mi. sect. of Secondary Hy. 5246 from State Route 26 at Alexandria extend, to Tennessee Hall, Proj. No. S-4246 (3), DeKalb Co., \$86,874***from Southern States Paving Co., 900 44 Ave. N., Nashville, bit. materials resurf. 0.45 mi. sect. State Hy. 49 on Spring St. in Charlotte, from junction of State Hy. 48 and extend, to east city limits of Charlotte, Proj. No. SAMP 112 B and SAP 162 D, Proj. No. SAMP 112 B, and bit. materials resurf. sect. of 15.8 mi. State Hy. 49 from east city limits of Charlotte and extend, to Harpeth River Bridge, Proj. No. SAP 162 D, Dickson and Cheatham Counties, \$54,875***from Wesco Paving Co., Volunteer Bldg., Chattanooga, widen, bit. materials resurf. 10.501 mi. sect. of State Hy. 34, from east city limits of Morristown and extend, to Hamblen-Hawkins Co. line, Proj. No. SAP 324 C and widen, and bit. materials resurf. 2.145 mi. sect. of State Hy. 34 from Hamblen-Greene Co. line and extend, to Hawkins-Greene Co. line, Proj. No. SAP 324 F, Hamblen and Hawkins Counties, \$245,129.

from Griffith-Bell Paving Co., W. Quincy Ave., Knoxville, bit. on gravel, chert or crushed stone surf. 4.695 mi. sect. of Secondary Hy. 2324 from Birdwell and extend, to Loudon Co. line, Proj. No. S-2424-121, Blount Co., \$64,832***from W. A. Liebbetter Constr. Co., Lexington, sheet base and bit. materials surf. 2.227 mi. and construct chert base and bit. materials surf. 4.047 mi. Secondary Hy. from junction of State Hy. 20 in Lexington and extend, to Natchez Trace State Park, Proj. No. SAP 775 A, Henderson Co., \$93,399***from Asheville Constr. Co., Inc., London Rd., Asheville, N. C., brushed stone surf. 7.634 mi. sect. of Forest Hy. 52 from North Carolina State line and extend, to Burnham, Proj. No. Forest 52 A, Carter Co., \$374,234***from Gallatin Paving Co., Hartsville, bit. materials resurf. 17.9 mi. sect. of Secondary Hy. known as Trousdale Ferry Rd. from junction of State Hy. 24 at Lebanon to the junction of State Hy. 53 at New Middleton, Proj. No. SAP-777 A, Wilson and Smith Counties, \$52,699***from Burns & Baker, Nashville, grading, drainage 9.334 mi. sect. of Secondary Rd. known as Sulphur Springs Bend Rd. from Haywood and extend, to Stone Bridge, Proj. No. SAP-774-A, Smith Co., \$84,456. CD 3/23.

Tex., Houston—Harris Co. Courthouse, Apr. 10, asph. paving, Voss Rd. and Bare Dr., from Ross Mitchell, Inc., 6304 Old Spanish Trail, \$214,171. Hugo Zapp, co. engr.

CONTRACTS AWARDED

Arizona—State Hy. Dpt., Phoenix, bit., seal coat 2 mi. East speedway Hy., Tucson, Pima Co., to L. M. White Contg. Co., Tucson, \$210,220; bit. road mix asph. seal coat 7½ mi. Casa Grande Hy., Pinal Co., to Bertron Contg. Co., 152 W. Watkins Rd., Phoenix, $80,908. Bids 4/7, awarded 4/8.

Calif., Antioch—City, City Hall, improv. One Tree Way and other streets, to Arta Contr. Co., 33 N. Front St., Rio Vista, $273,294. Bids 4/10.

Colo., Colorado Springs—City, City Hall, constr. approx. 70,000 lin. ft. curb and gutter, 22,000 sq. ft. sidewalk, 2,300 ft. straight curb, 3,000 lin. ft. double gutter, 115 water and 65 sewer taps, Esterbrook & Schwartz Constr. Co., 125 Bijou St., $128,990. Bids 4/2, awarded 4/6. CD 3/28.

Fla., Pensacola—City, street improv., to Ray Constr. Co., Mobile, Ala., $321,810. Bids 4/4. CD 3/15.

Ia., Cherokee—Cherokee Co., Cherokee, grading 29 mi. secondary roads, to Sathoff Constr. Co., Cherokee, $106,884. Bids 4/12. CD 3/30.

Kan., Eastborough—City, City Hall, blacktop paving, to Ritchie Bros. Constr. Co., Eastborough, $74,480 and to Standard Constr. Co., Eastborough, $59,375. CD 3/10.

Kan., Great Bend—City, City Hall, street improv., to Ralph Hunter, Hays, $107,729. Bids 4/3.

Kan., Iola—City, City Hall, street improv., to San-Ore Constr. Co., McPherson, $153,889. Bids 4/4. Morris Wills, city engr.

Maryland—State Rds. Comm., Baltimore, grading, drainage, surf. relocation of U. S. Rte. 220 beginning at north abutment of Keyser-McCool Bridge in McCool and extend, northerly to point 304 West of Cumberland Rd., (U. S. Rte. 220) Sect. "A" 28(3)615, Fed. Aid Proj. F-189 (4) Allegheny Co., to Empire Constr. Co., 31 S. Calvert St., Baltimore, $565,860. Bids 3/28, awarded 4/14. CD 4/4, under LB.

Massachusetts—Commonwealth of Massachusetts, Dpt. P. Ways, Boston, state hy. and bridge constr., F 25(69) Sutton-Northbridge-Douglas-Uxbridge, to S. S. Sylvester & Son, Salmon St., Pawtucket, R. I., $775,452. Bids 3/14, awarded 3/24. CD 3/22, under LB.

▲ Massachusetts—Commonwealth of Mass., Dpt. P. Ways, Boston, hy. and bridge constr., Reading-Wakefield, 0.272 [illegible] to A. V. Iaciofano Co., Inc., 134 Jaques St., Somerville, $2,104,188. Bids 2/21, awarded 3/28. CD 3/4, under LB.

▲ New York—Bureau Contracts & Accounts, Bertram D. Tallamy, Supt., Albany, 3.776 mi. Parkways Interstate Parkway, Orange and Rockland Counties, to Mid-Island Blacktop Corp., 51 Jericho Tpke., Mineola, L. I., $1,416,975. Bids 3/15. CD 3/20, under LB.

▲ North Dakota—State Hy. Dpt., Bismarck, to Mc-Garry Bros. St. Cloud, Minn., b. conc. surf., etc., 14.413 mi. state Hy. 11 from Hankinson to Fairmount, FAP Nos. F-59 (3) and S-43 (2), Richland Co., $284,719. Bids 4/7, 11 mi. on U. S. 81 from Hankinson to Wyndmere, FAP No. F 249 (6) Richland Co., $126,113; b. conc. surf., etc. 18.742 mi. State Hy. 2 from Finley East, FAP No. F-515 (2) and SAP 213, Steele and Traill Counties, $363,530***to Herbert Reese, Greenbush, Minn., grav. etc., 10.04 mi. U. S. Hy. 81 from Hillsboro east, FAP No. F 113 (2) Pembina Co., $195,162***to Arrow Campbell, Warwick, grav. surf. etc. 19.498 mi. State Hy. 1, FAP Nos. F 242 (2) and F 240 (2), Eastern Cass Co., $174,110***to Gerald Hyland, Lisbon, grav. surf. etc. 16.5 mi. Secondary Roads, Billings, Golden Valley and Hettinger Counties, $54,400. Grand total $1,208,044. Bids 4/14. CD 4/3.

Tex., Haskell—City, Courtney Rust, mayor, Haskell, street improv., incl. curb and gutter and hard surf. 12½ city blocks, to Cowden & Powers, P. O. Box 1097, San Angelo, $242,481. Est. $250,000. Bids 4/7. CD 4/3.

Tex., Marshall—City, street improv. and asph. paving, own forces, $125,000. J. E. Albright, city engr. CD 12/27.

Wisconsin—State Hy. Comm., Madison, c. conc. 4.948 mi., Caledonia-Franchelale Rd., U.S. Hy. 53, Proj. F 04-3 (28) Contr. 1, Trempealeau Co., to J. G. Atwell, Inc., Eau Claire, Box 229, Eau Claire, $263,509. Bids 4/4. CD 3/15.

▲ Alta., Calgary—City, City Hall, asph. 20 mi. prepare 5 mi. new roads for surf. and 10 mi. asph. surf., to Standard Gravel & Surfacing Co., Ltd., 534-2 St. S.W., Approx. $500,000; between 25 st. 30 mi. sidewalks, to Burns & Dutton Concrete & Constr. Co., Ltd., 5440 First St. W., $500,000. J. L. Strong, City Hall, city engr. CD 2/7, 43.

N. S., Halifax—City, M. Archibald, clk., paving certain city streets, to Standard Paving Maritime, Ltd., Lady Richmond Rd., Approx. $500,000, curbs, gutters and sidewalks, to Walker & Hall, 2 Ferry Bldg., Approx. $160,000. R. M. MacKinnon, c/o owner, engr. CD 2/2.

Ontario—J. D. Miller, Dpt. Hys., Toronto, grading 90 mi. Savant Lake to Dogpole Bay, Savant Lake to Bergmann Constr. Co., Ltd., West Hill, $250,000, CD 3/7; hy. 7 mi. from Greens Creek, Rockland, to Skinner Constr. Co., Ltd., 248 Albert St., Ottawa, $250,000, est. $300,000. CD 3/8.

EARTHWORK, WATERWAYS

BIDS ASKED

† Virginia—B.A. 5/2—U. S. Eng., foot of Front St., Norfolk, maintenance dredging Deep Creek, Warwick Co., and in James River adjacent to mouth of Deep Creek, Inv. Serio. No. CIVENG 44-110-50-69.

Fla., Miami—B.A. 5/3—City, City Hall, dredging channels and basins and constructing breakwaters, Biscayne Bay at Dinner Key, Plans deposit $10. CD 21-5-48.

† Missouri and Arkansas—B.A. 5/4—U. S. Eng., P. O. Box 147, Memphis 1, Tenn., placing approx. 140,000 cu. yd. earthwork and rip rental work in connection with repair of rain and wave wash on levee, in Lower St. Francis Levee District, incl. 52,000 cu. yds. Levee Item No. R-032P, Tyler, Pemiscot Co., Mo., and 110,000 cu. yd. Levee Item R-741P, in St. Clair, Missouri and Crittenden Counties, Ark., CIVENG 41-04-50-149.

B. C., Steveston—B.A. 5/3—Acting Secretary Dept. P. Wks., Hunter Bldg., Steveston North Jetty repairs Sects. S and 6, Fraser River. Approx. $100,000. Plans deposit $50. R. Blair, c/o owner, engr.

† Colorado—B.A. 5/4—U. S. Eng., P. O. Box 1538, Albuquerque—N. M., channel clearing, Wild Horse Creek, Holly, Serial No. CIVENG 20-005-50-22. Extended date, CD 4/12.

† Kansas—B.A. 5/4—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., public use facilities incl. shelter, comfort station, 32 x 52 ft. bathhouse, etc., Part 1, at Kanopolis Reservoir on Smoky Hill River, approx. 24 mi. southwest of Salina, CIVENG 23-028-50-139. CD 4/4.

† Mississippi—B.A. 5/4—U. S. Eng., P. O. Box 60, Vicksburg, Miss., Greenwood Protection Works, Item 184-L, on left bank of Yazoo River at Greenwood, Leflore Co., CIVENG 22-052-50-119.

† Nebraska—B.A. 5/4—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., levee and drainage Cuming-Burt, Serial No. CIVENG 23-028-50-129. CD 4/3.

† New Jersey—B. A. 5/4—U. S. Eng., 121 N. Broad St., Phila. 1, Pa., maintenance dredging approx. 55,000 cu. yd. material in Cooper River at Camden, extend upstream from mouth of the river approx. 1½ mi. to a line about 1,200 ft. upstream from Admiral Wilson Blvd. bridge, Inv. CIVENG 36-104-50-61.

† Pennsylvania—B.A. 5/4—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., bank stabilization, Upper Susquehanna River, Sects., Sunbury, Serial No. CIVENG 18-028-50-26. CD 4/11.

Alta., Spring Coulee—B.A. 5/4, L. B. Thomson, engr., 910 McCallum Hill Bldg., Regina, Sask., construction, installation structures, etc., for operation of diversion and irrigation pumps at St. Mary's Dam, for Joint Canada-U.S. Dpt. Agriculture, Ottawa, Ont. Extended date, CD 4/7.

† New York—B. A. On Or About 5/6—U. S. Eng., 214 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., Whitney Point Reservoir Clearing, Area 2, Otselic River, Whitney Point, Broome Co., Serial No. CIVENG 18-320-50-31.

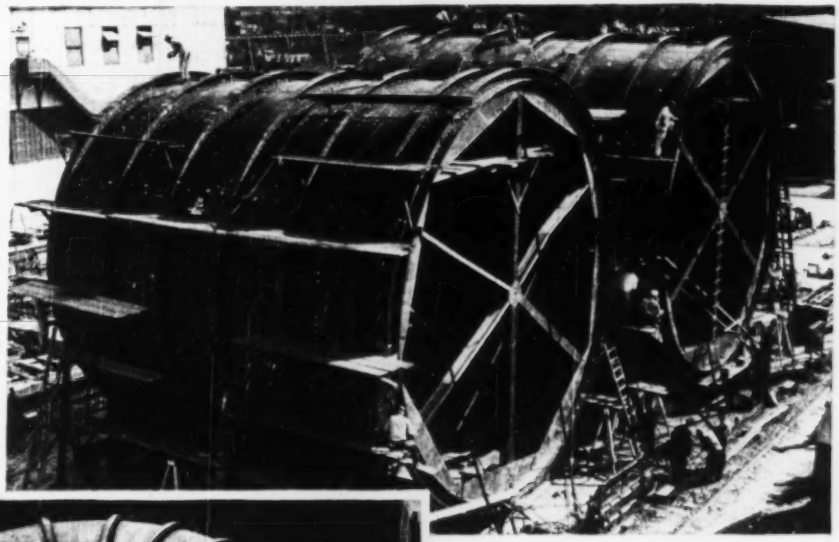
† Iowa—B.A. 5/5—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., underseepage control facilities for Agricultural Levee Units L-623-627 in vicinity of Council Bluffs, Pottawattamie Co., along left bank of Missouri River, approx. 625 mi. above mouth and 3 mi. south of Council Bluffs, CIVENG 25-066-50-267. CD 4/9/44.

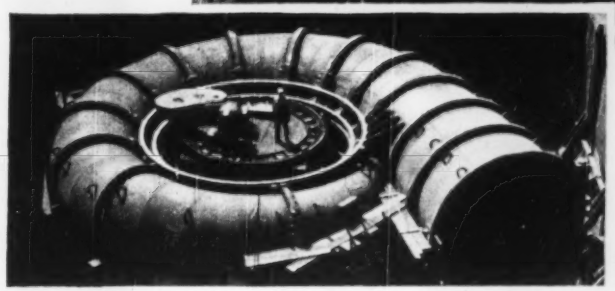
† Arizona—B.A. 5/9—Bureau Reclamation, Dpt. Interior, Yuma earthwork and lining operations, Mohawk Canal, stations 0 to 40+66 to Station 1987 plus 50, and Protective Dike 1, incl. outlet channel to Welton-Mohawk Div. Drn. Proj., from 25 mi. to 50 mi. east of Yuma, Spec. 2472, L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., Ch. engr. CD 4/9/12/44.

† Oregon—B.A. 5/9—Bureau Reclamation, Dpt. Interior, Bend, cattle guards, North Unit Main Canal and lateral sys., Deschutes Proj., along main canal and laterals of Deschutes Proj. within North Unit Irrigation Dist., Jefferson Co., Spec. No. 81-80.

California—B.A. 5/10—State Div. Hys., P. Wks. Bldg., Sacramento, restoring portion Sacramento River levee and place stone riprap at Butte City Ferry Crossing, Butte City, Glenn Co. G. T. McCoy, Sacramento, state hy. engr.

(Continued on page 88)





TO HARNESS THE ELEMENTS

SHOWN are shop erections of sections of a wind tunnel and a water turbine spiral casing at Newport News. One to be used in the development of America's planes of the future, the other to generate power in the world's largest hydro-electric development.

Tolerances required for the 34-foot diameter welded structure of the wind tunnel were: flushness or smoothness plus or minus 0.01"; fairness of structures 0.03" and up to ½" in diameter.

Eighteen of the 165,000 horsepower turbines at Grand Coulee have been built by Newport News. Nine sections of the casings are cast steel and six are welded and cast. These turbine units are the most powerful ever built.

Refractory towers, pressure vessels, bridge caissons and other heavy equipment of special design are fabricated at Newport News. The plant, over ¾ mile in length, includes welding and steel fabricating shops, machine shops, foundries and forge shop to provide the advantages of building the complete job.

"Facilities and Products" catalog will be sent if requested.

BUILDERS OF EQUIPMENT FOR CHEMICAL, PETROLEUM AND PETRO-CHEMICAL INDUSTRIES

NEWPORT NEWS

SHIPBUILDING AND DRY DOCK CO.

NEWPORT NEWS, VIRGINIA

(Continued from page 86)

† Washington—B. A. 5/10—U. S. Eng., 4735 E. Marginal Way, Seattle. Zone 4. 1,445 ft. grains and 1,400 ft. breakwater at Westhaven, Grays Harbor Co., CIVENG 40-70.

LOW BIDDERS

† Arizona—Bureau Reclamation, Dpt. Interior, Yuma, Apr. 11, reconstruct Gila Valley Canal Desilting Basin, Gila Proj.; Imperial Dam near Yuma. Spec. 2954, from Macco Corp., Paramount, Calif., $178,729, est. $269,552. CD 3/22.

† Arizona—Bureau Reclamation Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Apr. 11, 100,000 bbl. portland cement for constr. on Alvidton-Mohawk Div., Gila Proj., Spec. 2956, from Permanente Cement Co., 1924 Broadway, Oakland, Calif., Approx. $610,000. CD 3/28.

† Arkansas—U. S. Eng., 300 Broadway, Little Rock, Apr. 11, construct cut-off at Hensley Bar near Pine Bluff, Jefferson Co., Inv. CIVENG-03-050-50-66, from Clark & Farrell, Brinkley, $293,400, est. $363,600. CD 3/17.

† California—U. S. Eng., Wright Bldg., Sacramento, April 12, clearing for right wing Dikes 1, 2, 3, 4, and 6, near Folsom, Sacramento and Placer Counties, Spec. 04-167-5052, from Morrison-Knudsen, 411 W. 5 St., Los Angeles, $158,490. CD 3/21.

† Delaware—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., Apr. 11, dredging approx. 349,000 cu. yd. place measurement of material from project channel in Harbor of Refuge Delaware Bay 1 to 2 mi. southwest of Atlantic Ocean entrance to Bay at Cape Henlopen, CIVENG 36-109-50-57, from Dunbar & Sullivan, 2311 Buhl Bldg., Detroit, Mich., $167,520. CD 3/28.

† Delaware—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., Apr. 13, embankments and drainage structures for dredge spoil disposal area at Pigeon Point, Inv. No. CIVENG 36-109-50-53, from S. J. Groves, Woodbridge, $148,000. CD 3/30.

▲† Iowa—U. S. Eng., Clock Tower Bldg., Rock Island, Ill., Apr. 14, cutter works dam, Keokuk-Hamilton Stage II, Coralville Reservoir, Iowa River, Johnson Co., approx. 4 mi. north of Iowa City, Inv. CIVENG 25-117-50-237, from Texas Constr. Co., P. O. Box 1304, Dallas, Tex., $1,053,588. CD 3/13.

▲† Ky., Louisville—U. S. Eng., 830 W. Broadway, Zone 3, Apr. 18, constr. Louisville Flood Protection Works, Sect. E, on left bank of Ohio River, at point approx. 1½ mi. west of Kentucky State Fair Grounds, exten. downstream generally parallel with Ohio River to point approx. 1.3 mi. south of Lees Lane, thence southeast in general vicinity of Cave Run and Floyd Run, ends at Dixie Hy. approx. 1 mi. south of Lower Hunter's Trace Rd. Pleasure Ridge, CIVENG 25-109-50-214, from Terry & Steadman, Bay City, Mich., $1,345,579. Est. $1,637,006. CD 3/22.

† Louisiana—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, Apr. 11, proposed channel improvs., F. Y. 1950, Bayou Rapids, Bluff and Coushatta Bayou Coushatta Channel impvs. and realignment Mile 0 to Mile 6.9, CIVENG 16-047-50-327, from Grimmett Jones & Traylor, Inc., Port Barre, $224,315. CD 3/27.

† Massachusetts—U. S. Eng., 80 Lafayette St., New York City, N. Y., Apr. 5, flood control, Prog. Adams, CIVENG 30-075-50-68, from Wm. J. McNally, Inc., Salem & Williamstown, Mass., $513,910, alt. $510,256. CD 3/15.

† Massachusetts—U. S. Eng., 80 Lafayette St., New York, N. Y., Apr. 28, flood control, Hoosick River, North Adams, Berkshire Co., CIVENG 30-075-50-69, from Cranston Constr. Co., Inc., 544 West St., Pittsfield, $697,559. CD 3/28.

† Minnesota—U. S. Eng., 1217 Foshay, P. O. and Customhouse, St. Paul, Zone 1, Apr. 11, channel improvs., Red Lake River, Grygla to Thief River Falls, CIVENG 21-030-50-1, from Foshay Tower, Minneapolis, $146,016. CD 3/17.

† New York—U. S. Eng., 80 Lafayette St., New York, Zone 13, Apr. 6, channel improvs., Hoosick River, Hoosick Falls, CIVENG 30-075-50-67, from John A. Washburne, Inc., 18 E. 41 St., New York, Zone 17, $732,487. CD 3/16.

Pennsylvania—Dpt. Forests & Waters, 604 Education Bldg., Harrisburg, rejected bids Apr. 4, construct 2 access road grading at Tamaqua and Felix Sites, 4 space warehouses at Kennedyville, Tamaqua and Felix sites, fodder barn, station and quay wall at Tamaqua site, inch pavings, 4 working and parking areas, and industrial water line at Mt. Union, Shirley & Hunting Park, Inc., Reading, B. $232,975. Est. $100,000. Will re-advertise. CD 4/4, under 3/28.

† South Carolina—U. S. Eng., P. O. Box 495, Charleston, cancelled bids to have bids opened Apr. 20, maintenance dredging Shipyard River, Serial No. CIVENG 38-091-50-21. CD 4/11.

† Tennessee—U. S. Eng., P. O. Box 87, Memphis, Zone 1, Apr. 21, construct Mobile Bayou Pumping Station of the Memphis Arm River and Nonconnah Creek Proj. on riverside of Illinois Central R. R. track and west of intersection of N. 1st. and Mobile Ave., Memphis, Inv. No. CIVENG 40-041-50-134, from Ryan-Evans, Inc., Memphis, $441,439. CD 3/7.

† Washington—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 3633 feet steel and timber piling for Chief Joseph Dam, Columbia River, Inv. from Columbia Steel Co., 111 Trust Bldg., Portland, Ore., $428,660. Alt. Coos Bay Lumber Co., Eureka, Calif., Coast Steel Corp., San Francisco, $428,660. f.o.b. Lackaman, N. Y. CD 4/12-14.

CONTRACTS AWARDED

† Arkansas—U. S. Eng., P. O. Box 82, Memphis, Tenn., approx. 640,000 cu. yd. earthwork in levee at Francis Levee Unit, Cottonless Lake Section of No. CIVENG 40-042-50-93, to Driver Const. Co., Cotton Exchange Bldg., Memphis, Tenn., $231,670. Bids 3/29. CD 3/24.

† Oregon—U. S. Eng., Pittock Block, Portland, construct shutoffs and section of permanent Southern Pacific R. R., incl. Forest Service road relocation on north bank of Middle Fork Willamette River 1 mi. from Lowell, Lane Co., CIVENG 35-026-50-295, to McKurtt Bros., Eugene, $337,700. Est. $300,309. Bids 4/14. Awarded 4/14. CD 3/16.

▲ Pa., Phila.—Dpt. P. Wks., City Annex, Frankford Creek Flood Control Proj., to Progressive Builders, Crescent and Norwood Aves., Pennsauken, N. J., $1,372,630. Bids 3/17. CD 3/25, under L9.

Tex., Dallas—Dallas Power & Light Co., Dallas Power & Light Co. Bldg., concrete spillway extens. at Mountain Creek Lake force account. Approx. $90,500.

Tex., Texas City—Monsanto Chemical Co., Texas City, earthen dike around 10-acre tract and making mud hydraulic fill, to T. A. Newman Contg. Co., Texas City. Approx. $186,000. CD 4/13.

B. C., Fort Mann—Dpt. Pub. Works, Hunter Bldg., Ottawa, Ont., dredging 550,000 cu. yd. sand, silt and debris on Fraser River, Port Mann Channel, to British Columbia Bridge & Dredging Co., Ltd., 540 Howe St., Vancouver, $178,750. Bids 2/8. CD 1/25.

AIRPORTS

BIDS ASKED

N. C., Hickory—AIRPORT—B. A. 5/2—City, City Hall, airport construction, Schedule 2 (A) grubbing approx. 7.4 acres, (B) 75,000 cu. yds. unclassified excav., (C) drainage constr., (D) placing duct work; (E) furnishing and constructing 50,000 sq. yds. base; Schedule 3, 90,300 sq. yd. surface course; Schedule 4, turfing 48 acres; Schedule 5, lighting, multiple system. Plans deposit $10. Wm. C. Oliver, 5 Exchange Pl., Raleigh, engr. CD 2/21/47.

† Fla., Tampa—CONTROL TOWER—B.A.—5/3—U. S. Eng., Post Office Bldg., Savanah, Ga., control tower, $240,000 Air Force Base. Serial No. ENG-08-133-50-49. Extended date. CD 3/15.

Miss., Kessler—LIGHTING, etc.—B.A. 5/4—Purchasing & Contg. Office Kessler Field Air Force Base, Biloxi, rehabilitate air field lighting sys., Serial No. 22-020-50-22.

† Alaska, Fairbanks—HOUSES—B.A. 5/10—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, fourteen 8-family row-type houses at Eielson Air Force Base, S. 95-507-50-22. Plans deposit $50.

LOW BIDDERS

Ala., Decatur—AIRPORT—City, Pryor Field Airport, from Evergreen Constr. Co., Athens, $119,549. Bids 4/7. CD 3/29.

▲† S. D., Rapid City—PARKING APRON—U. S. Eng., 1704 Jackson St., Omaha, Neb., Apr. 11, addnl. parking apron at Rapid City Air Force Base, Serial No. Inv. 7, Schedule 2. Kiewit Sons Co., Omaha Natl. Bank Bldg., Omaha, Neb., $1,080,913. Est. $1,284,920. CD 3/15.

LATIN AMERICA

Bolivia, Santa Cruz—Direction General de Hidraulica y Electricidad, engr., Ministry of Pub. Wks., La Paz, receiving bids May 15 for power plant for Cochabamba. Bldg. La Paz. CD 6/11/46.

† Cuba, Havana—Dpt. of State, Foreign Buildings Operations, 21 and Virginia Ave. N. W., Wash. D. C., receiving bids to erect 5-story penthouse office bldg. for Embassy of United States. $850,000-$1,000,000. Harrison & Abramovitz, 35 Rockefeller Plaza, New York, N. Y., archts. Severud, Estad & Kruger, 415 Lexington Ave., New York, N. Y., engrs.

PUBLIC BUILDINGS

BIDS ASKED

Conn., Ansonia—HOUSING—B.A. 5/2—City of Ansonia Housing Auth., Timothy Quinn, Chr., 60 family units, Zone 1, Apr. 24, $489,000. Extended date. Henry T. Morgan & Son, 15 Hillcrest Ave., Naugatuck, archts. CD 2/24.

Md., Easton—OFFICE, etc.—B. A. 5/2—State Road Comm., 104 E. Lexington Ave., Baltimore, Zone 2, 2 story, 12,400 ft. office, state police office and storage bldg., 1 story, 16x147 ft. concrete block storage bldg., 1 story, 16x147 ft. concrete block storage bldg., water supply sys., sewage disposal sys. at State Rt. 3 Comm. Property, Rte. 50, Cordy, T. 231.1.21, Talbot Co. Plans deposit $5.

Md., Upper Marlboro—SCHOOL—B.A.—5/2—Prince George's Co. Bd. of Educ., Bladensburg-Brentwood Area, Apr. 25, $2,000,000. Plans deposit $10. Arthur Keyser, 1410 Jefferson Pl. N. W., Wash. D. C., archt.

Tenn., Bolivar—HIGH SCHOOL—B. A. 5/2—At site in Wheeler's pinch ast Hardeman County Court-house, Inv. No. general contract heating, plumbing, electrical work, seating for 1,000 pupils, auditorium, gymnasium, cafeteria, vocational shops, classrooms, Plans deposit $25. Arthur Keyser, 1410 Jefferson Pl. N. W. Wash. D. C., archt.

Tex., San Marcos—DORMITORIES, etc.—B. A. 5/2—Southwest Texas State Teachers College, San Marcos, housing 250 girls and residence-dormitory for 60 boys, Plans deposit $50. Bid for general plans. A. P. Smith Natl. Bank Commerce Bldg., San Antonio, archt. J. W. Beretta Engineers, 402 Travis Bldg., San Antonio, structural engr. on dormitory. M. E. Staley, 51 Chandler Bldg., San Antonio, mech. engr. on all bldgs. CD 6/16.

W. Va., Glenville—HEALTH and PHYSICAL EDUCATION—B.A. 5/2—W. Va. Bd. Educ., Capitol Bldg., Charleston, health and physical education bldg. at Glenville State College. Plans deposit $30. Grete & Dailey, 306 Payne Bldg., Charleston, archts. CD 2/15.

Ont., Pickering—HIGH SCHOOL—B. A. 5/2—Shore & McNat, archts., 79 Queen St. E., Toronto, high school north of Community Park, for Pickering District High School Bd. Approx. $300,000. Plans deposit $25. CD 2/9.

Que., Montreal—HOGAN, BATH—B.A. 5/2—Executive Com., City Hall, reconstructing Hogan Bath, Wellington St. Plans deposit $100. O. Beaupre, City Hall, city archt.

† Md., Baltimore—OFFICE—B. A. On Or About 5/8—U. S. Eng., 24 St. and Maryland Ave., Zone 3, stair, elevator hoistways, approximate work Baltimore Distr. Office Bldg. CIVENG 18-020-50-29.

Conn., Newington—HOSPITAL, etc.—B.A. 5/3—Controllers Office Hartford main hospital addns., alterations, Cedarcrest Sanitorium CD 12/13.

N. Y., Brooklyn—LIBRARY—B.A. 5/3—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, general contract plumbing heating electrical work for construction and remodelation various library bldgs. (DeKalb Branch and Carroll Park Branch), in Brooklyn Boro. for Brooklyn Public Library. Plans deposit $15.

N. C., Charlotte—HIGH SCHOOL—B. A. 5/3—Mecklenburg Co. Bd. Educ., Courthouse, 70,000 sq. ft. North High School. Plans deposit $50 general, $25 mechanical work. Extended date. Graves & Toy, Piedmont Bldg., archts. CD 4/5.

▲Pa., Somerset—PATIENTS, etc.—B.A. 5/3—General State Auth., 18 and Herr Sts., Harrisburg, general contract, heating, plumbing, electrical work, elevator and dumbwaiter constr. of disturbed patients bldg. at Somerset State Hospital, $1,400,000. Plans deposit $20 each. Frank B. Prack, First Natl. Bank Bldg., Pittsburgh, Zone 22, archts., A. F. Jones, c/o owner, ch. engr.; general contract, heating, electrical work, radial brick chimney constr. of new boiler plant, $700,000; general contract, heating, electrical work for steam distr. sys. and tunnels, $400,000; electrical distr. sys., $300,000. Plans deposit $10 each. Peter F. Loftus Corp., First Natl. Bank Bldg., Pittsburgh, Zone 22, engrs. CD 4/29.

Pa., Wernersville—NURSES HOME—B.A. 5/3—General State Auth., 18 and Herr Sts., Harrisburg, general contract, heating, plumbing, electrical work for nurses home at Wernersville State Hospital, $318,000. Plans deposit $10 each. Wayne M. High & Sons, 230 N. 6 St., Reading, archts. A. F. Jones, c/o owner, ch. engr. CD 11/28.

† Tennessee—OPERATING—B.A. 5/3—U. S. Eng., U. S. Courthouse, P. O. Box 1070, Nashville, Zone 1, operating bldg., addn., Lock 1, Tennessee River, Serial No. CIVENG 40-058-50-40.

▲ Ont., Centralia—HOUSES—B.A. 5/3—A. J. E. Smith, engr., Central Mortgage & Housing Corp., 545 Fleet St. W., Toronto, 175 houses, N. D. Non-Urban Proj., 1-50. Approx. $1,400,000. Plans deposit $10.

† Colorado—DISCONNECTING FUSE, etc.—B.A. 5/4—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, furnishing del. f.o.b. cars shipping point or f.o.b. cars, Longmont, Colo., disconnecting fuse, fuse units, disconnecting switch for Leyner substation Colorado-Big Thompson Proj., Spec. 2962. L. N. McClellan, chf. engr.

▲† D. C., Wash.—ENGINEERING—B.A. 5/4—General Services Admin., F St. between 18 and 19 Sts. N. W., engineering bldg. at Howard University. CD 2/23/48.

Kan., Olathe—SCHOOL—B.A. 5/4—State Social Welfare Bd., National Bank of Topeka Bldg., Topeka, Special School for Deaf, Inv. for training unit, $245,000. Charles Marshall, 2021 Clay St., Topeka, state archt. CD 4/21.

La., Jennings—SCHOOL—B.A. 5/4—State Bd. Educ., Baton Rouge, Jefferson Davis Parish Trade School, $250,000. CD 5/27.

La., Jennings—SCHOOL—B.A. 5/4—Jefferson Davis Parish School Bd. Jennings, Fenton School Plans deposit $50. Barron, Heinberg & Brocato, Guaranty Bank Bldg., Alexandria, archts. CD 6/14.

N. C., Concord—HOUSING—B.A. 5/4—Concord Housing Auth., J. C. Cannon, Chr., City Hall, Housing Proj., Project 5-56. Extended date. A. G. Odell, Jr. & Assoc., 109 W. 3 St., Charlotte, archts. CD 3/30.

Tex., Waco—SCHOOL—B.A. 5/4—Waco Independent School Dist., Neil Foster, pres., Waco, 1 story masonry school, $275,000. Plans deposit $10. Wilson & Patterson, 702 Majestic Bldg., Fort Worth, archts. Sayer & Bush, Am-Cable Bldg., assoc. archts. CD 3/16.

† Washington—RESIDENCES, etc.—B. A. 5/4—Bureau Reclamation, Dpt. Interior, Espinita residences (3), caps, pump house (1), 1 story, water tank, tower grading, steel tank, 4 M reinforcing, Inv. Project Winchester, Columbia Basin Proj., Spec. R1-CB-47. R. J. McClellan, Bldg. 1-A Denver Federal Center, Denver, Colo., ch. engr.

Wis., Wauwatosa—HOSPITAL—B.A. 5/5—Milwaukee County Institutions & Departments, 1 story, ground floor, Tuberculosis Hospital. Plans deposit $25. M. F. Pryor, 8125 Pinewood Circle, Zone 13, archt.

(Continued on page 89)

CLYDE "QUALITY PLUS" HOIST

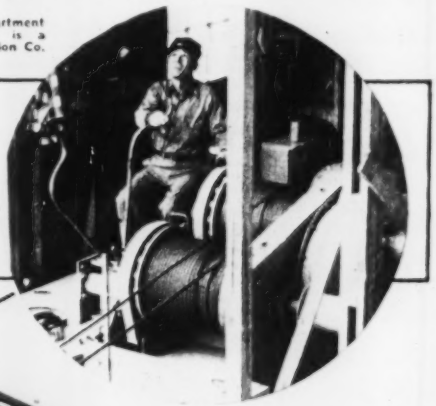
. . . KEEPS A "TIGHT LINE" ON MATERIAL HANDLING COST. For . . .

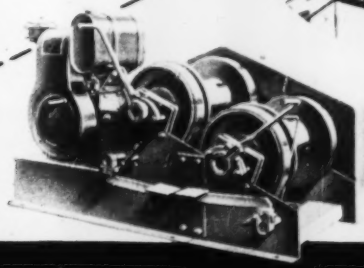
PAUL SMITH CONSTRUCTION COMPANY

THE selection of Clyde for the hoist-handling of all materials on this 210 unit apartment building again attests to the dependable performance of this Clyde "quality-plus" Frame 4 Hoist. The added safety of conveniently located controls and easier operation, lower power requirements due to ball bearing construction, and the honest-to-goodness quality of a Clyde Hoist assure greater productivity per man-hour and the elimination of "down-time" . . . the difference between profit and loss on a project such as this. If you want to stand toe to toe with competition and "stay in the black," it will pay you to drop a line requesting complete information on Clyde "quality-plus" Hoists.

This new 16 story, 210 unit apartment building in Jacksonville, Florida, is a project of the Paul Smith Construction Co.

Here is the two drum, Frame 4, fifty horsepower electric Clyde Hoist in operation on the job. Gasoline or diesel powered units are also available.





CLYDE "QUALITY-PLUS" FRAME 3 HOISTS

One and two drum models of Clyde Frame 3 Hoists have all the quality features of the larger Frame 4 Hoists. This unit is recommended for work where hoisting requirements do not exceed one and one-half ton capacity. Choice of power: gasoline, diesel or electric.

Frame 3-4 ClydeHoists are also made in Canada

CLYDE IRON WORKS, Inc.

Subsidiary of Barium Steel Corp.

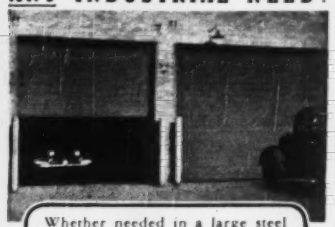
DULUTH 1, MINNESOTA

KINNEAR

Rolling Doors

for

ANY INDUSTRIAL NEED!



Whether needed in a large steel mill . . . or simply at a small warehouse loading-platform . . . KINNEAR can supply steel rolling doors to fit any requirement. These steel interlocking-slat curtains rise straight up and coil compactly above the lintel! And when shut they supply extra protection against fire, theft and the elements. Available with push-button motor operation from one or several strategic points. Write for details.

The KINNEAR Manufacturing Co.

Factories:

1820-40 Fields Ave., Columbus 16, Ohio

1742 Yosemite Ave., San Francisco 24, Calif.

Offices and Agents in Principal Cities

Coiling Doors on Rolling Doors

KINNEAR ROLLING DOORS

GUNITE

PNEUMATICALLY PLACED CONCRETE

DENSE · DURABLE · HIGH STRENGTH

for

Restoring Disintegrated Concrete

Dam, Dock and Bridge Repairs

Steel Encasement and Fireproofing

Sewer, Water Pipe and Penstock Linings

Stack and Bunker Linings

Wood Pile Casings—Pressure Grouting

Prestressed Tanks and Silos

Get in touch with us for engineering data and estimates

GUNITE CONSTRUCTION CORPORATION

420 LEXINGTON AVE., NEW YORK 17, N.Y.

MURRAY HILL 3-7699

DRILLING CONTRACTORS

DIAMOND AND SHOT CORE BORINGS—DRY SAMPLE BORINGS

Foundation Testing for Bridges, Dams and all Heavy Structures

Also

Manufacturers of Diamond and Shot Core Drills, Accessories and Equipment

SPRAGUE & HENWOOD, Inc.

Scranton, Pa. **Dept. E, U. S. A.**

Ont., Orillia—SCHOOLS—B.A. 5/4—Page & Steele, archts., 72 St. Clair Ave. W., Toronto, 2 story, brick, steel Hillcrest School addn., 2 story, brick, steel David H. Church School addn., 78 x 225 ft. Mount Sloven School for Board Educ., Orillia. Approx. $375,000. Plans deposit $50.

† North Dakota—SCHOOL—B.A. 5/5—U. S. Eng., Box 300, Fort Lincoln, Bismarck, temporary addn. to school, Riverdale, Serial No. CIVENG 32-015-50-68. CD 6/1/44.

O., Maple Heights—SCHOOL—B.A. 5/5—Bd. Educ., Lee and Broadway, Cleveland, 2 story bsmt., 12 room, brick, block, Stafford School addn., Stafford Rd. $250,000. W. G. Caldwell, Engineers Bldg., Cleveland, archt. CD 11/21.

† Ala., Tuskegee—DINING HALL, etc.—B.A. 5/8—Veterans' Admin., Vermont Ave. between H and I Sts. N. W., 25, D.C., Dining Hall and Kitchen Bldg., addn., alterations. Spec. 5007, Proj. 2921. CD in prep.

Calif., Fresno—LABORATORY—B.A. 5/8—State Div. Architecture, P. Wks. Bldg., Sacramento, general contract, plumbing, heating, ventilating and refrigeration and electrical work, 1 story, wood frame with concrete floor poultry and animal diagnostical laboratory for Dpt. Agriculture. Plans deposit $25. Anson Boyd, Sacramento, state archt.

† Alaska, Galena—QUARTERS, etc.—B.A. 5/9—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, quarters for bachelor officers, NCOs and enlistmen, central heat and power plant, operations bldg., warehouse and cold storage, vehicle warm storage, mess hall, recreation bldg., dispensary and administration bldg., POL station storage, outside utilities and roads for military installation. 595-597-50-13. Plans deposit $100.

Calif., San Mateo—AUDITORIUM—B.A. 5/10—San Mateo Union High School Dist., San Mateo. 32,900 sq. ft., 1611 person seating San Mateo High School auditorium, incl. stage dressing rooms, orchestra pit. $1,000,000. Plans deposit $25. Leo J. Sharpe & Irving F. Brown, 1314 Howard Ave., Burlingame, archts. CD 7/17/47.

† N. M., Moriarty—TRAINING CAMP SITE—B.A. 5/10—U. S. Eng., P. O. Box 1538, Albuquerque, Training Camp Site 2, Station P-51, Serial No. Eng. 29-005-50-67. CD 3/24.

Tex., Palestine—HOSPITAL—B.A. 5/10—Anderson Co., Palestine, 2 story, 148 x 412 ft., faced brick, limestone, steel, concrete, steel hospital, concrete pier and beam fdn., etc., air-conditioning. $750,000. Plans deposit $25. Theo. S. Moffitt, 510 W. Sycamore St., archt. Landauer & Guerrero, 4801 Lemmon St., Dallas, engrs. CD 3/21/49, under LB.

LOW BIDDERS

▲ Calif., Chino—RECEPTION CENTER—State Div. Architecture, P. Wks. Bldg., Sacramento, Apr. 11, general contract 1, 2 and 3 story 147,000 sq. ft. reception center bldgs. at Chino State Prison from Robt. E. McKee Co., 4700 San Fernando Rd., West Los Angeles. $1,735,700. CD 3/14.

Calif., Long Beach—ARTS, etc.—City School Dist., 215 Locust Ave., Apr. 13, arts, administration, life science and music bldg. at Long Beach City College, from Brought Constr. Co., 1444 Higuera St., Culver City, $936,000. Est. $922,000. CD 3/29.

† Calif., Los Angeles—KITCHEN, etc.—Veterans admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., Apr. 18, kitchen and dining hall bldg. 100, for veterans administration center. Spec. 5010, Proj. 2668, from Reinzeil Constr. Co., 3445 Higuera St., Culver City. $839,462. CD 2/28.

▲ Calif., Redwood City—HOSPITAL—San Mateo Co., Courthouse, Apr. 11, 4 story, 100 bed rein.-con. V-shaped tuberculosis hospital, from James J. Baroni, 2600 Ist Ave., Berkeley. $1,333,000. Douglas D. Stone & Alfred B. Mitchy, 619 California St., San Francisco archts.

▲ Conn., Bridgeport—HOUSING—City of Bridgeport Housing Auth., Anthony D. Cireu, chm., Apex 17, 504 brick dwelling units, Rue Court, from E & F Constr. Co., 44 Wells St. $3,744,000. CD 4/3.

Ga., Jonesboro—SCHOOLS—Clayton Co. Bd. Educ., Jonesboro, Apr. 12, 3 high schools from W. B. Johns, 711 Palatine Ave. S. E., Atlanta. $651,218. CD 3/31.

† Ill., Chicago—HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., general contract research hospital for Veterans Administration, at Erie, Huron and Fairbanks St. and McClure St., from W. E. O'Neil Constr. Co. & Kenny Constr. Co., 111 W. Washington St. $12,352,300, work to be completed in 650 days, from Just-K-Newberg Constr. Co., 2040 N. Ashland Ave. $12,447,000, work to be complete in 600 days, elevators and dumbwaiters, Marshall & Huschart Mach. Co., 1013-29 St. N. W., Wash., D. C. $609,533. Metzgen & Haven, 8 from Montgomery Elevator Co., Moline. $560,956. CD 2/16.

† N. Y., Watertown—BUILDINGS, etc.—U. S. Eng., 80 Lafayette St., New York, Zone 13, Apr. 6, buildings, utilities, new heating from Calvado, Inc., 50 Clinton St., Brooklyn. $657,722. CD 3/16.

† Vt., St. Albans—BUILDINGS, etc.—U. S. Eng., Army Base, Boston 10, Mass., Apr. 12, buildings, utilities, heating, Serial No. Eng. 19-005-50-23, from Bennett, Stewart Co., Inc., 105 Newbury St., Boston, Mass., $944,734. CD 3/9.

▲† Alaska, Naknek—MILITARY INSTALLATION—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, Apr. 12, bachelor officers quarters, non-commissioned officers' quarters, airmens' quarters, central heating and power plant, operations bldg., warehouse and cold storage, vehicle warm storage, mess hall, recreation bldg., dispensary and admin. bldg., POL station storage, outside utilities and roads for Naknek Proj., 595-597-50-13, from Gaasland Constr. Co., Inc., Bellingham, Wash., $1,766,677. CD 3/7.

CONTRACTS AWARDED

Calif., Los Angeles—GARAGE, etc.—Bd. Educ., 1425 S. San Pedro St., 3 story, garage and office, 451 N. Hill St., to Alliance Constr. Co., 35 N. Raymond Ave., Pasadena, $954,630. Bids 2/24, awarded 3/7. CD 3/6, under LB.

▲ Conn., Hartford—HOUSING—City of Hartford Housing Auth., 846 Asylum Ave., 248 family units, Rice Heights Proj., Flatbush Ave., MR-1-A, from Fair Oaks Constr. Co., 141 Marshall St., $2,250,000. Bids 3/31, CD 4/12, under LB.

Conn., Newington—HIGH SCHOOL—Town of Newington Bldg. Newington, 2 story, bsmt., brick, steel high school, Cedar St. to Wadsworth & May Co., 15 Lewis St., Hartford. $805,140. CD 3/28, under LB.

▲ La., Shreveport—HOUSING—Shreveport Housing Auth., W. C. Mason, secy., City Hall, Wilkinson Terrace Housing Proj., LA 2-2, to Farnsworth & Chambers, P. O. Box 724, Houston 1, Tex., $2,191,965. Bids 2/27, CD 2/24, under LB.

Mass., Greenfield—HOSPITAL—Franklin Co. Pub. Hospital, High St., hospital addns., alterations, High St., to O. D. Purington Co., Inc., 171 Westminster St., Providence, R. I., $809,450. Bids 3/24, awarded 4/12. CD 4/4, under LB.

▲ Mass., Wellesley—SCHOOL—Town, High School Bldg. Comm., Junior High School, Kingsbury St. to Jos. C. Muzzioli, 168 Mystic Ave., Medford. $1,362,700. Bids 3/23, awarded 4/4. CD 4/3, under LB.

† New York—BUILDINGS, etc.—U. S. Eng., 80 Lafayette St., New York, Zone 13, buildings, utilities, No. 1,927-E-627, Arthur Weinert Co., 500 North Ave., Westfield, N. J. $778,449. Bids 4/4, CD 4/4.

N. C., Asheville—HOUSING—Asheville Housing Auth., Asheville, housing units, to Skinner & Rhodes, Cherry Co., 12 State St., Charleston, S. C. $558,865. Bids 4/5, CD 4/11, under LB.

N. C., Goldsboro—HOSPITAL—Wayne Memorial Hospital, V. G. Herring, chm., Bd. Trustees, Goldsboro, 100 bed hospital addn. and heating plant bldg., to T. A. Loving & Co., Bank of Wayne Bldg., $551,776. Bids 4/6, CD 4/11, under LB.

▲ Pa., Hollidaysburg—HOSPITAL—General State Auth., 18 and Herr Sts., Harrisburg, general contract hospital at Hollidaysburg State Hospital, from McKelvey & Co., 1620 W. Thomas St., Phila. $1,038,000. Bids 4/12, awarded 4/18. CD 4/18, under LB.

▲ R. I., Providence—HOUSING—Providence Housing Auth., Joseph P. Carroll, chm., 268 Chad Brown St., 24 buildings, Housing Proj. RI-1-1A, Admiral Terrace, to E. Turgeon Constr. Co., 614 Turks Head Bldg., $2,184,747. Bids 4/14, Greer, Kent, Mather, Cruise & Aldrich, 423 Industrial Trust Bldg., archts.

▲ Wash., Richland—SCHOOL—School Bd., Richland, Chief Joseph Junior High School, to C. S. Mullen, Inc., 621 4 Ave. N., Seattle. $1,418,900. Bids 3/17, CD 3/24, under LB.

▲† Alaska, Anchorage—MILITARY INSTALLATION—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, military installation at Fire Island, S 95-507-50-6, to J. H. Pomeroy Co., Inc., 336 Montgomery St., San Francisco, Calif., $2,685,795. Est. $2,477,502. Bids 3/14, CD 3/23, under LB.

▲† Alaska, Fairbanks—MILITARY INSTALLATION—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, bachelor officers quarters, airmens barracks, central heating and power plant, operations bldg., recreation bldg., etc. at Murphy Dome, 45 military Proj., to Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho and Peter Kiewit Sons' Co., 1100 Alaska St., Seattle, Wash. $3,113,113. Est. $2,447,502. Bids 3/15, CD 3/27, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

Mass., Worcester—CHURCH—B.A. 5/1—Trinity Lutheran Parish, 41 Belmont St., 1 story, basmt., brick, stone church, $250,000. Jens Frederick Larson, 311 Madison Ave. New York, N. Y., archt.

Pa., Upper Darby—DEPARTMENT STORE—B.A. 5/1—John H. McClatchy Bldg., department store, $500,000. Erling H. Wenge, c/o owner, archt. CD 4/14.

Me., Waterville—HOSPITAL—B.A. 5/2—Thayer Memorial Hospital, 214 Main St., hospital, North St., $750,000. Jas. R. H. Ritchie & Assoc., 38 Newberry St., Boston, Mass., archts.

La., New Orleans—HOTEL—B.A. 5/3—Jung Hotel, c/o Weiss & Silverstein, 611 Common St., 18 story hotel addn. Extended date, CD 4/3.

La., New Orleans—SCHOOL—B.A. 5/3—St. Mary of the Angels Parish, Rev. Aubert F. de la Vergne, pstr., 413 Pere Marquette Bldg., selected list bidders, 3 story, 46,100 sq. ft. parochial school and gymnasium, Congress and N. Tonti Sts. CD 6/30.

▲ N. Y., New York—HOSPITAL—B.A. 5/5—Mt. Sinai Hospital, 5 Ave. and 100 St., hospital and laboratory, $7,000,000. Extended date, Kahn & Jacobs, 2 Park Ave., archts. York & Sawyer, 101 Park Ave., consult. archts. Fred M. Severud, 415 Lexington Ave., engr. CD 2/30.

Wis., Milwaukee—HOSPITAL—B.A. 5/5—Columbia Hospital, 3321 N. Maryland Ave., Zone 11, 5 story, 546,135 ft., steel, brick hospital addn., concrete

...tdrs. and floors. Eschweiler & Eschweiler, 720 E. Mason St., Zone 2, archts. CD 4-20

Del.: Claymont—HOME—Bids Asked—Children's home, 203 Todds Lane, Wilmington, hosp. $250,000. Walter Carlson, Penna R. R. Bldg., Wilmington, archt. CD 4-27

Del.: Wilmington—SYNAGOGUE, etc.—Bids Asked—Congregation Beth Emeth, du Pont Bldg., synagogue and school, $300,000. Maurice Courtland, 2 W. 89 St., New York, N. Y., archt. Bid date changed. CD 2-28

Ill.: Park Ridge—CHURCH—Bids Asked—Community Church of Park Ridge, 1000 Courtland St., 1 story, brick, stone trim, $250,000. Perkins & Will, 19 E. La Salle St., Chicago, archts. CD 10-11-45

Ia.: Upper Darby—DEPARTMENT STORE—Bids Asked—John B. McCaffrey Est. and Market St. Department Store, $250,000. Greenberg & Shapiro, 215 S. Broad St., Phila., engrs. CD 11-17

Wis.: Milwaukee—APARTMENT—Bids Asked—Empire Apartments, 100 E. F. Hone, archt., 824 N. Broadway, Zone 2, 4 story brick, 15x41x10 ft., 134 unit apartment, stone apartment.

SOON LETS CONTRACT

▲ Mass.: Newton—CLASSROOM—Boston College, 140 Commonwealth Ave., Zone 16, contract, 4 story, 110x250 ft., veneer, Georgian, concrete foundation, slate roof. Maginnis & Walsh, 110 Federal St., Boston, archts. CD 4-7

Minn.: East Grand Forks—SCHOOL—Immaculate Heart of Mary, Rev. A. Mann, contract, 2 story, 44x121 ft., basement, 1 story, 44x101 ft. Auditorium section, $500,000. O. H. Kruse, Aberdeen, archt. CD 4-5

Alaska: Fairbanks—HOSPITAL—Sisters of Charity of Providence, Fairbanks, Stock Lets Contract, 2 story, 124x23 ft., reinforced concrete, Fairbanks Hospital, $150,000. J. W. Maloney, Central Bldg., archt. CD 4-10

LOW BIDDERS

Calif.: Merced—OFFICE—Farmers Insurance Group, 4630 Avenue of the Los Angeles, Apr. 24, 42,000 sq. ft., one story, fire office and file, 12" reinforced concrete, apartments, Hyatt Treasure Island & Fisher Hotel, Fresno, $669,000. CD 4-4

Md.: Marlboro—HOSPITAL—Dunkard Hospital, Inc., Apr. 11, hospital, addition, Smith Bldg., Washington, D. C., archt. Bid $271,000. CD 4-6

▲ Okla.: Fort Sill—HOUSING—Fourth Army Headquarters, Fort Sill, Lawton, Tex., Quartermaster Depot, Fort Worth, Tex., & Air Force, Andrews Bldg., Dallas, Tex. Approx. $5,000,000. CD 10-27

Pa.: Meadville—HOME—Methodist Free Conference Home, Conference Rd., Jamestown, Ky., S. Ida M. Hamilton Home for the Aged, Main St., Meadville, Pa., Methodist Church, Grand Central Terminal, New York City, $547,240. Ralph A. Reed, 1 W. Lancaster Ave., Ardmore, Pa., archt. CD 4-14

Pa.: Pottsville—HOSPITAL—The Pottsville Hospital, Apr. 24, addition, Nurses' Home, Dorrance Bros. Co., Bid Bloomsburg, $514,800. CD 3-1

S. C.: Charleston—ACADEMIC and APARTMENT—The Citadel, Academic Bldg., 1 story, $703,000. CD 3-1

Tex.: Houston—OFFICE—Transcontinental Building Corp., 1 story, 100x100 ft., Kirby Lumber Co., 16 Gulf St., $850,000. CD 3-1

CONTRACTS AWARDED

Ill.: Chicago—APARTMENTS—Dunham Park, Inc., 2 story, 16 units, 1 story, 28 units, brick, Dunham Park Apartments, Inc., 2 story, 16 units, brick, Dunham Park Cottage, Dunham Park Apartments, Inc., 2 story, 16 units, brick, Dunham Park Apartments, Inc., 2 story, 16 units, brick, Dunham Park Apartments, Inc., 2 story, 16 units, brick

▲Que., Beaconsfield—APARTMENT—J. A. Dakin, 217 Chester Ave., Mount Royal, apartment house units on site of Drummond Farm. Owner builds. $1,500,000.

▲ Que., Rosemount (Postal Dist. Montreal)—COTTAGES—Continental Housing Corp., 148 Sun Life Bldg., Montreal, one hundred and forty-six 1 story, 22x39 ft., concrete brick cottages, on 31 and 35 Aves., to T. C. Constr. Co., 7109 Chambord St., Montreal. Approx. $1,036,000.

INDUSTRIAL BUILDINGS

BIDS ASKED

Pa., Pennsburg—FACTORY—B.A. 5/1—Construct-oneers, Inc., archt., Security Trust Bldg., Pottstown, (selected list bidders) factory for Pennsburg Clothing Mfg. Co., Pennsburg. $125,000.

Ky., Bowling Green—WAREHOUSE, etc.—B.A. 5/3—Warren Co. Rural Electric Assoc., Bowling Green, 1 story, brick concrete warehouse-office bldg. and parking area, $75,000. CD 7/1, under Unclassified.

La., North Baton Rouge—PLANT—B.A. 4/27—Ethyl Corp., c/o Albert Kahn Assoc. Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., central and storage bldg. Extended date CD 4/12.

Tenn., Chattanooga—TERMINAL—B.A. 5/3—Dixie Ohio Express Co., c/o Abreu & Robeson, archts., 22 Marietta Street Bldg., Atlanta, Ga., truck freight terminal. CD 2/20.

Wis., Milwaukee—WAREHOUSE, etc.—B.A. 5/8—Pittsburgh Plate Glass Co., 235 E. Pittsburgh Ave., Zone 4, 1 story, 225x245 ft. and 60x70 ft. steel, brick, block warehouse office, concrete tilt, and floor, V. K. Boynton, 621 N. Broadway, engr. CD 12/26/49, under LH.

Conn., Seabrook—FACTORY—Bids Asked: Platt Read Co., Ivoryton, 1 story, 64x116 ft. brick, steel factory alterations, addns., Ivoryton Section, $60,000. Leonard S. Mayer, Inc., 164 Church St., New Haven, archt.

Conn., Waterbury—WAREHOUSE, etc.—Bids Asked—John Bozzuto & Sons, Mark St., 1 story, 140x60 ft., brick under block gravel warehouse. Freight $110.00. Albert H. Fuchs & Sons, 243 S. Elm St., archts.

Kan., Kansas City—PLANT—Bids Asked: Crushed Mfg. Co., 404 Minnesota Ave., Kansas City, Mo., c/o Chas. E. Keyser, archt., 404 Minnesota Ave., Kansas City, Mo. (selected list bidders) manufacturing plant, $300,000.

Pa., Philmont—MUNITIONS—Bids Asked—John A. Bower, archt., 24 York Rd., Abington, (selected list bidders) industrial bldg. for owner. Approx. $60,000.

SOON LETS CONTRACT

Ill., Chicago—PROCESSING—H. C. Christians Co., 1550 Blue Island St., (and Lots Fronting) 2 story, brick processing bldg., $750,000. Battey & Childs, 231 S. LaSalle St., engrs. CD 2/8.

Ia., Sioux City—PLANT—Swift & Co., 4115 S. Packers St., Chicago, Ill., (non-fabricated, rebuild 6 story packing plant) Approx. $500,000. CD 1/12.

N.C., Charlotte—PLANT—The Knight-Mfg. Co., c/o J. D. Taylor, engr., Nashville, Tenn., etc., contract 76,000 sq. ft. factory and office, Approx. $500,000. J. N. Pease & Co., ▼ 1144 E. Trade St., engr. and archt.

O., Avon Lake—LABORATORY—B. F. Goodrich Chemical Co., Rte. 83 & Lake Shore Blvd., Avon Lake, 1 story, 12x40 ft. brick, steel, glass and service laboratory. Walker Rd. $500,000.

CONTRACTS AWARDED

▲ N. J., Kenilworth—MANUFACTURING, etc.—White Laboratories, Inc., 113 N. 13 St., Newark, manufacturing bldg., offices, and laboratories, Kenilworth, to Frank Briscoe Co., Inc., 287 S. 14 St., Newark. Approx. $5,000,000. A. M. Kinney, Inc., Cincinnati Bldg., Cincinnati, O., engrs.

▲ Alta., Edmonton—OIL REFINERY—Mid-Continent Petroleum Corp., Ltd., Montreal, Que., refinery, to Foster Wheeler Corp., 25 Cameron Ave., Approx. $10,000,000. CD 1/1/49.

▲ Ont., Toronto—FACTORY—International Business Machines Co., Ltd., 16 King St., (superstructure of 1 and 2 story, 113,000 sq. ft. steel frame, steel sash factory, Don Mills Rd., to Milne & Nicholls Ltd., 867 Bloor St. W., Toronto) $1,250,000. CD 12/2.

▲ Sask., Regina—LABORATORY—Canada Department of Agriculture, Federal Government Bldg., Regina, (various service units at refinery on No. 1 Hy., Provincial workshop, laboratory, to Excelsior Bridge Co., 1135 Broadway, Main, Approx. $1,500,000. Bond Bldg. Co., 409 N. Boston St., Tulsa, Okla., engr. CD 4/27/49.

UNCLASSIFIED

BIDS ASKED

British Columbia—RAILWAY EXTEN.—B.A. 5/1—Pac. Great Eastern Ry. Co., Vancouver, (Extension of Pac. Great Eastern Railway extension, north of Prince George, to Mile 242.5, to Mile 427.5, $6,000,000. Plans deposit $50. CD 4/10/47.

† Pennsylvania—OPERATING HOUSE HEATING, etc.—B.A. About 5/2—U. S. Eng., 2A-55, 2nd Maryland Ave., P. O. Box 1715, Baltimore 3, Md., (operating house heating, shop and storage bldg., Ingan Rock Dam, York Co., Serial No. CIVENG 28-020-50-32.

Kansas—RURAL DISTRIBUTION LINES—B.A. 5/2—P. H. & W. Electric Co-operative, Wamego, 147.49 mi. rural distr. lines, 14.25 mi. conversion lines, Pottawatomie, Jackson, Riley, Wabaunsee and Geary Counties. $160,000. Frank Horton & Co., Lamar, Mo., engrs. CD 1/31.

Me., Portland—PIER—B.A. 5/2—Constr. Office, First Naval Dist., 495 Summer St., Boston, Mass., general repairs, Pier 1, Naval Reserve Training Center, Spec. 23905. Plans deposit $5.

† Me., South Portland—PIER REPAIRS—B.A. 5/2—Capt. K. A. Godwin, officer in charge of Constr., First Naval Dist. Headquarters, 495 Summer St., Boston, Mass., replacing deck planking and fender piles, Pier 1, Spec. 23905. Plans deposit $5.

† Mass., Lowell—PARKING AREA—B.A. 5/2—U. S. Naval Reserve Training Center, Lowell, parking area, Spec. No. 23904. Plans deposit $10.

† N. C., Cherry Point (Br. New Bern)—FILTERS—B.A. 5/2—R. C. Applewhite, Resident Officer in Charge of Construction, Cherry Point, replacing filters in Combat Training Pools 1 and 2, Bldgs. Nos. 289 and 662 at Marine Corps Air Station, NOY 20313, Spec. 23814. Plans deposit $10.

Pennsylvania—POWER and LIGHTING SYSTEM—B.A. 5/2—Dpt. Forests & Waters, 404 Education Bldg., Harrisburg, electric power and lighting sys. for Tamaqua Dwelling Bases on Little Schuylkill River below South Tamaqua, Schuylkill Co. $200,000. Plans deposit $10. Schuylkill River Project Engineers, 20 S. 15 St., Phila., engrs.

Que., St. Jerome—ARENA—B.A. 5/2—O. Tessier, City Clk., municipal arena for Municipality, $200,000. Plans deposit $25. L. Nicolas, 298 Labelle St., archt. CD 10/5/49.

Tenn., Knoxville—GAS SYSTEM—B.A. 5/3—Knoxville Utilities Bd., c/o S. Ray St., gas sys. improv.

† Arizona-Nevada—TRANSMISSION LINE—B.A. 5/4—Bureau Reclamation, Dpt. Interior, Phoenix, Ariz., stringing of conductor and overhead ground wire on Davis Dam-Coolidge 230-kilovolt transmission line, Davis Dam Proj., between Davis Dam and Prescott Mesa and Coolidge Ariz. Spec. 2470. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

North Dakota—RURAL DISTRIBUTION LINES—B.A. 5/4—Tri-County Electric Co-operative, Carrington, 278 mi. rural distr. lines, Kidder, Stutsman and Wells Counties. $300,000. Otteg Eng. Corp., 212-4½ Front St., Fargo, engrs.

Tex., Anahuac—GAS SYSTEM—B.A. 5/5—City, 8 mi. natural gas sys. $240,000. Howard & Perlee, 6716 Johnson Place, Bldg., Houston, engrs. CD 10/26.

† Arizona-California-Nevada—STEEL TOWERS, etc.—B.A. 5/4—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. U. S. cars Boulder City, Nev., (for lower sub angles for Transmission Circuit 161 kv. for Davis Dam-Lanyon, Switchboard, Boulder Canyon Proj., Spec. 2490-). L. N. McClellan, ch. engr. ▼ 4/13/49.

† Montana—SHELTER, etc.—B.A. 5/9—U. S. Eng., Fort Peck, open shelter and cleaning house, lavatory and toilet house, remodeling Dagmar Rd. intersection, fence, etc., at Fort Peck Site, Fort Peck Reservoir, CIVENG 24-016-50-31.

† Okla., Brown—SWITCHING STATION—B.A. 5/10—Southwestern Power Admin., Dpt. Interior, c/o Fort Supply, in Aircrafts Assembly Plant No. 3, Tulsa, 115 kv switching station, $100,000. Plans deposit $15.

† Montana—PENSTOCK GATE HOISTS, etc.—B.A. 5/11—Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars Forsyth, a penstock gate hoist with throttle valve, 1 set operation equipment, 2 sets gate guides, (for Yellowtail Afterbay Dam, Horse Rock Canyon Proj., Spec. 2490-). L. N. McClellan, ch. engr.

SOON LETS CONTRACT

▲ Texas—OIL PIPELINE—Pan-American Pipe Line Co., M. Rigdon Bldg., Houston, (4-in. Lets Contract, 60 mi. pipeline, Snyder area, Scurry Co. $1,274,000. CD 4/14.

CONTRACTS AWARDED

▲ Oklahoma and Kansas—PIPE LINE—Great Lakes Pipe Line Co., Board Bldg., Kansas City, Mo., (4 and 12 in. pipe line between Hannibal, Okla., and Kansas City, Kan., enlarging pumping stations at Hannibal and Humboldt, Kan., 8 in. pipe line from Cushing and Drumright (55 mi.) to Tulsa, Okla., each) Proj. A part of current $50,000,000 program. CD 8/2.

▲ Alberta, Manitoba and Saskatchewan—PIPELINE—(4 in.) Interprovincial Pipe Line Co., Imperial Oil Bldg., Toronto, Ont., (to Lac Curtis Co., Ltd., Regina, Sask., pumping station, Kerrobert, $70,000; pumping station, Gretna, Man., $1,175,000; pumping station, Cavey, Man., $1,275,000. Grand Forks Iron Works, engrs. ▼ 4/13/49.

▲ Ont., London—ARENA—City, G. George, mayor, City Hall, (municipal arena in Queen Park, to Patterson Construction Ltd., 128 Osborne St., Approx. $1,323,000. Plan ▼ 4/14. CD 2/16.

Proposal Advertisements see pp. 92 to 96

OFFICIAL PROPOSALS

Bids: May 11, 1950 (707)

Grading of Route 4

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 4 PARKWAY, SECTION 21, GRADING

For the grading of Route 4 Parkway, Section 21, from Pennsylvania Railroad to Route 4 North of Cassville Road, Borough of South Toms River, Berkeley and Dover Townships, Ocean County. Length 3.1± miles.

Estimated:
9,500 cu. yds. Roadway Excavation-Earth
52,000 cu. yds. Wet Excavation
685,000 cu. yds. Borrow Excavation
7,000 cu. yds. Channel & Ditch Excavation
1,300—Trimming Existing Trees

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, May 11, 1950, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), (ELEVEN o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bid must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $5,000 nor more than $50,000 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota. Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Construction of Lower Locks and Dam at St. Anthony Falls, Mississippi River, Minneapolis, Minnesota, will be received in this office until 11:00 A.M. C.S.T., 24 May 1950 and then publicly opened. Further information upon application. (707)

(Continued on page 93)

OFFICIAL PROPOSALS
(Continued from page 92)

Bids: May 11, 1950 (754)

Intercepting Sewer

Sealed proposals will be received at the office of the Department of Service and Buildings of the City of Dayton, State of Ohio until 12:00 o'clock noon Eastern Standard Time, Thursday, May 11, 1950 for furnishing all materials and constructing sections H and HI of an Interceptor Sewer in the bed of the Great Miami River from Floral Avenue to Webster Street, and thereafter will be publicly opened and read.

These sections consist primarily of approximately 1572 feet of reinforced concrete box sewer 7'3" x 7'-1", 327 feet of box sewer 5'-5" x 7'-0", 200 feet of siphon under the Great Miami River consisting of two 30" cast iron pipe lines and one 36" cast iron pipe line, 1100 feet of 30" pipe sewer and 400 feet of 24" pipe sewer. Bids shall be submitted for construction of the two sections as a unit.

It is to be assumed that the total cost of the improvement will not exceed $247,725.88. Bids shall be accompanied by a certified check upon some solvent bank or a bond executed by a surety company authorized to do business in Ohio or a bond of the United States or the City of Dayton for a sum equal to 5% of the amount of the bid submitted as a guarantee that if the bid is accepted that a contract will be entered into and its performance properly secured. Plans, specifications and proposal forms may be obtained from the City Engineer, Municipal Building, Fourth and Main Streets, Dayton 2, Ohio, upon payment for $22.00 per set. Checks shall be made payable to the City of Dayton. Refund will be made for return of plans and specifications. The City reserves the right to reject any or all bids or to accept the proposal which appears most advantageous.

George E. Baker
Director of Service and Buildings
Municipal Building
Dayton 2, Ohio

Bids: May 17, 1950 (706)

Construction of Right-of-Way Fence

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 2:00 P.M. (Eastern Daylight Saving Time), the 17th day of May 1950, and immediately thereafter will be taken to the Public Utility Commission Hearing Room, Second North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

For the construction of Right-of-Way Fence on the Philadelphia Extension of the Pennsylvania Turnpike System. This work extends from a point near Middlesex, Cumberland County, Pennsylvania to a point near King of Prussia, Montgomery County, Pennsylvania, a distance of approximately 361 miles.

The work consists of placing Right-of-Way Fencing and the approximate quantities of the various types of fence are as follows:

Type 2	56,075 lin. ft.
Type 3	328,432 lin. ft.
Type 3A	38,852 lin. ft.
Type 4B	14,600 lin. ft.

Copies of plans, specifications and other contract documents will be on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission at Harrisburg, Pennsylvania on 21 April 1950. Plans, specifications and other contract documents will not be available before the date for inspection or for issuing to prospective bidders.

Plans and contract documents including specifications may be obtained from the Commission upon deposit of Ten (10) Dollars for each set, which deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and contract documents if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

Bids will only be received from established manufacturers of Chain Link Type Fence (R.W. Fencing Type 11 and/or Farm Fence (R.W. Fencing Type 2).

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
April 18, 1950

Bids: May 25, 1950 (755)

Alterations & Addition to High School

NOTICE TO CONTRACTORS

Alterations and Additions to Present High School, Winton Road South

New Primary School, Monroe Avenue

Union Free School District No. 1 of the Towns of Brighton and Pittsford, Monroe County, New York

Subject to approval of plans and specifications by the State Education Department, Albany, New York, separate sealed bids for General Construction Work, Heating and Ventilating Work, Plumbing Work and Electrical Work for the construction of alterations and additions to present high school building and a new Primary School Building in accordance with plans and specifications, will be received by the Board of Education of the Union Free School District No. 1, Towns of Brighton and Pittsford, Monroe County, New York, at the office of the present Brighton High School, District No. 1, Winton Road South, Building, New York until 11:00 o'clock P.M. May 24, 1950 at which place and hour they will be publicly opened and read aloud.

The Information for Bidders, Form of Bid, Plans and Specifications may be examined at the office of Carpenter and Harrows, Architects, 10 Reynolds Arcade, Rochester 14, New York, and copies thereof obtained upon payment by certified check, payable to the Architects, of $25.00 for each set for each building. Any bidder, upon returning such set promptly and in good condition, will be refunded his payment and any non-bidder upon so returning such set will be refunded $15.00.

The Board of Education of the Union Free School District No. 1 reserves the right to waive any informalities in or to accept or reject any or all bids.

Each bidder must deposit with his bid security in an amount of not less than five per centum (5%) of the base bid in the form and subject to the conditions provided in the Information for Bidders.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract.

Proposals shall be on blank form furnished by the Architects prepared as set forth in Information to Bidders, enclosed in a sealed envelope bearing on its face the name and address of the bidder and the title of the work to which the enclosed proposal relates.

No bidder may withdraw his bid within 45 days after the actual date of the opening thereof.

High School Plans available April 20, 1950.

Primary School Plans available April 24, 1950.

By Elizabeth K. Crawford
District Clerk

Bids: May 23, 1950 (706)

The Delaware Memorial Bridge

NOTICE TO BIDDERS

Sealed proposals for construction of The Pennsylvania Railroad overpass for "The Delaware Memorial Bridge" over the Delaware River near Wilmington, Delaware, will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Continental American Building, Wilmington, Delaware, until 11 o'clock, Eastern Standard Time, (12 o'clock Eastern Daylight Saving Time), May 23, 1950. Immediately thereafter proposals will be publicly opened and read in the Council Chamber, Wilmington City Hall.

The work involves the following principal quantities:

2,500 cu. yds. Concrete in Footings	
5,500 cu. yds. Concrete in Shafts	
15,500 cu. yds. Concrete in Superstructure	
8,500 lin. ft. Cast-in-Place Concrete Piles	
165,000 lbs. Reinforcing Steel	
411,000 lbs. Structural Steel	
500 lin. ft. Pipe Railing	

Performance of this contract shall begin promptly after the execution of the contract and shall be completed on or before April 1, 1951.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms furnished by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check for an amount equal to at least five (5) per cent of the total amount of the proposal.

The contract will be awarded or proposals rejected within twenty (20) days from the date of opening proposals. The right is reserved to reject any or all bids.

The Plans and Specifications and other contract documents may be examined at the office of the Director, Delaware Crossing Division and at the office of the Engineers, Howard, Needles, Tammen and Bergendoff, 55 Liberty Street, New York 5, N. Y. One complete set of the Plans and two copies of the Specifications may be obtained from the Engineers upon payment of $25.00. Any prospective bidder who has made such a deposit may secure extra blueprint copies of the Plans upon payment of 50 cents per drawing and extra copies of the Specifications upon payment of $2.00 per copy.

All Plans and Specifications shall be returned to the Engineers, and on such return only, of the above payment will be refunded. No refund will be made of payments for extra prints of the Plans. Full refund of deposit will be made on set of payments for extra copies of the Specifications. All such refunds will be made only upon return of the documents within 10 days after the opening of proposals.

STATE HIGHWAY DEPARTMENT
J. Gordon Smith, Chairman

W. W. Mack, Director
Delaware Crossing Division
Wilmington, Delaware
April 17, 1950

U. S. Government

Department of Commerce, Bureau of Public Roads, April 6, 1950 — SEALED BIDS will be received at the office of the District Engineer, Bureau of Public Roads, 1140 Columbia Pike, Arlington, Virginia, until 10:00 a.m. E.S.T., MAY 11, 1950, for Project 1H32, Blue Ridge Parkway, Rockbridge, Bedford, and Botetourt Counties, Virginia. Length 21.20 miles. The approximate quantities of the more important items are: 16,000 tons Type H-1 Asphalt Concrete; Type and 7,500 cu. yd. Portland Cement Concrete Pavement. Attention is called to the fact that not less than the minimum wage rates as determined by the Secretary of Labor as set forth in the specifications must be paid on this project. Plans and specifications may be examined at the office of the District Engineer, Bureau of Public Roads, 1140 Columbia Pike, Arlington, Virginia, and at the office of the Resident Engineer, Bureau of Public Roads, Roanoke, Virginia. Copies may be obtained from the Bureau of Public Roads, Arlington, Virginia, upon payment of $10.00 each, which will be refunded upon return of plans in good condition within 10 days after opening of bids. Proposal forms may be obtained from the Bureau of Public Roads, Arlington, Virginia, or from the Resident Engineer, Bureau of Public Roads, Roanoke, Virginia. H. T. Spelman, Division Engineer.

(695)

(Continued on page 94)

CONTRACTORS WATCH THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

U. S. Government
(Continued from page 93)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 29837) will be received by Bureau of Reclamation, Moorcroft, Wyoming, May 23, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of Keyhole Dam, Keyhole Unit, Missouri River Basin Project. The work is situated about 16 mi. northeast of Moorcroft, Wyoming. Principal items are approximately: excavation, 1,246,000 cu yds.; embankment, 1,267,000 cu. yds.; riprap 45,000 cu. yds.; 7,500 cu. yds. concrete; and other work. Time allowed for completion will be 870 days. For particulars, address Bureau of Reclamation, Moorcroft, Wyoming; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (697)

OFFICIAL PROPOSALS

Bids: May 16, 1950 (704)

State Road Work

NOTICE TO CONTRACTORS. STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y. Pursuant to the provisions of Highway Law, as amended, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M. advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, May 10, 1950 by Henry A. Colvin, Director, Bureau of Contracts & Accounts, 13th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract containing 1 to 15 sheets is $10.00; 16 to 20 sheets, $15.00; 20 to 50 sheets, $25.00; 50 to 100 sheets, $50.00; over 100 sheets, $100.00. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 333 Broadway, Albany, N. Y.				
Essex	FASS 50-1	Taiawus-Stetson River Pt. 1 & 44 & 45; Proj. S[illegible]7-2		B. S. Bit. Treat. Graded Gravel	$19,000 Plans $15	$124,000
Saratoga	RC 50-15	Ballston, Lake-Hagel Mills, S. H. 7281; Ballston-Ballston Lake, Pt. 2, S. H. 5085	1.94	24' Conc. Conc. Pave. 20'-22' Wide = 1.92 mi. Misc. Work = 0.02 mi.	$15,000 Plans $10	$270,000
		DISTRICT No. 3				
		Wm. Rousson, Dist. Engr., 301 E. Water St., Syracuse, N. Y.				
Otsego	FARC 50-11	Unadilla-Pulaski, Pt. 1 & 2, Pt. 2, S. H. 5085, 5221; Pulaski-Sandy Creek, S. H. 5225 Proj. F. I. 403-8, 327-8;	15.27	Asph. Conc. Type 1A, Opt.	$45,000 Plans $25	$1,735,000
Otsego	FAS SH 50-5	New Haven-Texas, Pt. 2, S. H. 5233-2; Proj.	3.50	9" Cem. Conc. Pave. 24' Wide Reinf. Conc. Slab Br. 26' Span	$32,000 Plans $10	$589,000
		DISTRICT No. 4				
		A. R. Mellon, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Genesee	FAS SH 50-6	Elba-Byron, Pt. 3 Proj. S235-2	0.87	Bit. Mac. Opt., Rd. Mix 1-Beam 2 Spans 35.9½"	$6,000 Plans $10	$108,000
		DISTRICT No. 6				
		H. E. Bauman, Dist. Engr., 50 West Main St., Hornell, N. Y.				
Schuyler	FARC 50-14	Montour Falls, S. H. 5100 Proj. F[illegible]7-3	0.65	Asph. Conc. Type 1A, Opt. Alpha 1-Beam 72' Span Alpha = $87.80	$18,000 Plans $10	$308,000
Steuben	FARC 50-12	Hammondsport-Kraka, S. H. 8502; Wayne-Kraka, Kraka-Penn Yan, Pt. 1, S. H. 1579 Proj. F[illegible]5-3	8.36	Asph. Conc. Type 1A, Opt. = 8.26 Mi. Misc. Work = 0.10 Mi.	$65,000 Plans $15	$1,213,000
Tioga	RC 50-13	Richford-Center Lake, Pt. 1, S. H. 5442	5.04	Bit. Mac. Opt., Rd. Mix = 5.03 Mi. Misc. Work = 0.01 Mi.	$16,000 Plans $15	$286,000
		DISTRICT No. 8				
		J. S. Boyd, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Ulster	RC 50-17	New Paltz-Plattekill, S. H. 9-06 572	0.40	Asph. Conc., Type 1A, Opt.	$5,200 Plans $10	$84,000
		DISTRICT No. 10				
		J. J. Deery, Dist. Engr., Montauk Hwy. at Little E. Neck Road, Babylon, L. I., N. Y.				
Bronx	FA MDE 50-1	Major Deegan Expressway I 20 Conf. I 87 Van Cortlandt Park Golf Course Restoration, Project I 1082-3		Grading & Misc. Work	$25,000 Plans $10	$441,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly stated on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Comptroller of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated. The right is reserved to reject any or all bids.

H. D. TALLAMY
Supt. of Public Works

U. S. Government

Notice to Contractors

GENERAL SERVICES ADMINISTRATION
Community Facilities Service
Washington 25, D. C.

Sealed proposals will be received by Rufe H. Newman, Jr., Deputy Commissioner for Engineering and Construction, Community Facilities Service, General Services Administration, Room 5143, General Services Building, Washington, D. C., until 11:30 o'clock, A.M., Eastern Standard Time, on May 17, 1950, for the construction of the following work at Charlotte Amalie, St. Thomas, Virgin Islands, comprising approximately the following quantities in the major items:

PROJECT NO. 53-102—WATERFRONT IMPROVEMENTS—ST. THOMAS, VIRGIN ISLANDS

- 3,500 cu. yds. Rock Fill
- 1,500 sq. yds. Grouted Riprap
- 37,000 lin. ft. Wood Piles
- 143,000 sq. ft. Steel Sheet Piling
- 184,000 lbs. Tie Rods
- 322,000 lbs. Steel Reinforcement
- 4,600 lin. ft. Creosoted Timber Guard Rail (6" x 10")
- 2,200 cu. yds. "A" Concrete
- 330,000 cu. yds. Earth Fill
- 5,500 lin. ft. Pipe in Storm Sewers (15" to 30")
- 1,200 cu. yds. Rubble Masonry
- 20 Manholes, Inlets and Catch Basins
- 2,700 lin. ft. Combined Curb and Gutter
- 5,200 sq. yds. 6" Concrete Pavement

At which time and place the proposals will be publicly opened and read aloud. Bids received after closing time of bid opening will be returned unopened.

Plans and specifications and other proposed contract documents are open for public inspection at the District Engineer's office, Charlotte Amalie, St. Thomas, Virgin Islands; the District Engineer's office, 501 Banco Popular Building, San Juan, Puerto Rico; and Room 5130, General Services Building, Washington, D. C.

A set of such documents may be procured from the office of H. L. Kenan & Associates, Consulting Engineers, Bell Building, Montgomery, Alabama, upon deposit of $40.00, all of which will be refunded to bona fide bidders upon the return of plans and specifications, in good condition, within seven days from date of bid opening.

To parties who procure plans and specifications upon payment of $50.00 and who do not submit a bid, $40.00 will be refunded *provided same are returned within seven days from date of bid opening. No refund will be made for return after this time.*

Each proposal must be accompanied by a bid security in an amount of not less than 5 per cent of the total bid.

The successful bidder will be required to furnish a performance bond in an amount equal to 100 per cent of the contract price, and a payment bond in an amount equal to 100 per cent of the contract price, such bonds to cover full performance of the contract and payment for labor and materials.

No proposal may be withdrawn after the scheduled closing time for receipt of bids for at least 30 days.

The Government reserves the right to reject any and all proposals and to waive informalities with respect thereto.

PERE F. SEWARD
Commissioner
(681)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 29884) will be received by Bureau of Reclamation, Denver, Colorado, May 11, 1950, and then publicly opened for furnishing and installing vertical centrifugal pump and motor units as follows: 2 pumps with a capacity of 59.5 cfs under a total head of 248 ft.; 2 pumps with a capacity of 59.5 cfs under a total head of 144 ft.; and 2 pumps with a capacity of 55 cfs under a total head of 66 ft. for Quincy Pumping Plant, Columbia Basin Project, Washington. Delivery is desired within 180 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner
(681)

(Continued on page 95)

"SEARCHLIGHT"
Opportunity Advertising

—to help you get what you want.
—to help you sell what you no longer need.

Take advantage of it—For Every Business Want

"Think SEARCHLIGHT First"

OFFICIAL PROPOSAL

RATE: $1.00 per line for fraction per insertion.

CLOSING DATE: 2:00 p.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

OFFICIAL PROPOSALS

(Continued from page 94)

Bids: May 9, 1950 (702)

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:

CONTRACT NO. 23

The work to be performed under this Contract involves the construction of twelve (12) steel and concrete overhead highway-railway structures in connection with the construction of the New Jersey Turnpike, Section 1, between Prospect Plains and the Raritan River in Middlesex County, New Jersey.

Principal items of work include:

Open Foundation Excavation, 6,870 Cu. Yds.; Concrete, 10,230 Cu. Yds.; Reinforcement Steel, 1,240,000 Lbs.; Structural Steel, Miscellaneous, Concrete Piles, 21,800 Lin. Ft.; Railroad Signals, Ft. Pipe Drains, 2,470 Lin. Ft.; Pipe Conduit, 13,250 Lin. Ft.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, on and after April 18, 1950 at the office of the New Jersey Turnpike Authority, 54 Prospect Street, Trenton, New Jersey, and at the office of the Engineers, DeLeuw, Cather & Company, 150 Monument Street, Newark, New Jersey.

Contract documents will be furnished for $5.00 for each set upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned.

* * *

CONTRACT NO. 28

The work to be performed under this Contract involves excavation; furnishing, placing and compacting various graded borrow excavation materials to embankments; stabilizing existing ground by the use of vertical sand drains; excavating portions of interchanges; and constructing bridges, depressing the interchanges or excavated on the embankments and other incidental work in connection with the construction of the New Jersey Turnpike from the West Shore Railroad (New York Central Railroad) to New Jersey Route 4, Borough of Ridgefield Township of Rokelle Park, Bergen County, New Jersey.

Principal items of work include:

Roadway Excavation Earth, 20,000 Cu. Yds.; Roadway Excavation, Rock, 900 Cu. Yds.; Roadway Excavation, Muck, 25,000 Cu. Yds.; Roadway Excavation, Dump, 30,000 Cu. Yds.; Borrow Excavation, 450,000 Cu. Yds.; Vertical Sand Drains, 38,000 Lin. Ft.; Storm Drains and Sewers, 1,470 Lin. Ft.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after April 18, 1950 at the office of the New Jersey Turnpike Authority, 54 Prospect Street, Trenton, New Jersey, and at the offices of the Engineers, Edwards and Kelcey, Frederic R. Harris, Inc. and J. Porter & Company, Associated, 1 William Street, Newark 2, New Jersey.

Contract documents will be furnished for Five ($5.00) Dollars for each set, upon application to the Authority. The payment will not be refunded and the Contract documents are not required to be returned. Plans showing grading cross sections may be examined at the office of the Authority or at the office of the Engineer.

* * *

Proposals will be received at the office of the New Jersey Turnpike Authority, 54 Prospect Street, Trenton 8, New Jersey, until 10:30 o'clock on the morning of May 9, 1950 and thereafter in the Veterans Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey until 11:00 A.M. on the same date, at which time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to prior prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a revised financial statement and a statement of plan and equipment.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications for Construction of the New Jersey Turnpike and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority, or a proposal bond, each for *not less than* 5% *percent of the amount of the proposal*, but not less than $100,000 nor more than $200,000 as and must be delivered with proposal on or before the hour named. Copies of the proposal form to be used in submitting proposals, the form for proposal bond, of the form to be used for financial statement and plan and equipment statement to be submitted with proposal, and special addressed envelopes are furnished as attached form with the contract documents.

The Contracts will be awarded or proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

April 17, 1950

Bids: May 17, 1950 (702)

Water Supply Improvements

CITY OF NIAGARA FALLS, NEW YORK
CONTRACT 2—INTAKE STRUCTURE AND TUNNEL

Sealed proposals will be received by the City Manager of Niagara Falls, New York, at his office in said City not later than 10:00 A.M. Eastern Daylight Saving Time on May 17, 1950, at which place and hour they will be publicly opened and read, and a contract awarded for the work hereinafter specified, for the construction of a water intake tunnel, shaft and intake structure.

The work will comprise approximately 575 feet of 6-foot circular concrete-lined tunnel in rock, below the bed of the Niagara River, a 7-foot diameter concrete lined shaft and a reinforced concrete intake structure.

All work shall be in accordance with the Instructions to Bidders, Proposal, Agreement, Bond, Plans and Specifications on file in the office of the City Engineer, City Hall, Niagara Falls, New York, and at the office of Greeley and Hansen, Engineers, 220 South 16th Street, Philadelphia 2, Pennsylvania. Copies of these documents may be obtained from the City Engineer at their Greeley and Hansen upon the deposit of $25.00 for each set. The amount of the deposit will be refunded to each bidder who returns a Contract Documents within 30 days after the opening of bid.

A cash, draft or certified check in the amount of five per cent of the total of the bid shall accompany each proposal. The City Manager, Niagara Falls, New York must accompany each proposal.

The Contractor shall furnish performance bond approved by the Corporation Counsel in the amount of 100 per cent of the contract price.

The City reserves the right to waive any informalities in or reject any or all bids, and to accept the bid which it deems most favorable to the interest of the City and has been examined and considered.

CITY OF NIAGARA FALLS
(Signed) Charles W. Ross
Acting City Manager

Dated: April 18, 1950

U. S. Government

Notice to Contractors

GENERAL SERVICES ADMINISTRATION
Community Facilities Service
Washington 25, D. C.

Sealed proposals will be received by Ruth B. Newman, Director, Public Works Construction Division, Community Facilities Service, General Services Administration, Room 5142, General Services Building, Washington, D. C., until 11:00 o'clock A.M., Eastern Standard Time, on May 24, 1950, for the construction of telephone and radio link facilities and buildings on the islands of St. Thomas and St. Croix (U. S. Virgin Islands) as follows:

PROJECT No. 51-III, ST. THOMAS TELEPHONE SYSTEM
(Project No. 12, Public Law 516, 78th Congress)

U. S. Government

Subproject 13A — Outside Telephone Plant, St. Thomas.

Subproject 13B—Inside Telephone Plant, Charlotte Amalie.

Subproject 13C—Subscriber Telephone Plant, St. Thomas.

Subproject 13D—Radio Link Stations, Virgin Islands.

Subproject 13X—Telephone Exchange, Charlotte Amalie.

PROJECT No. 51-IV, ST. CROIX TELEPHONE SYSTEM
(Project No. 13, Public Law 516, 78th Congress)

Subproject 28A — Outside Telephone Plant, St. Croix.

Subproject 28B—Inside Telephone Plant, Christiansted and Frederiksted.

Subproject 28C—Subscriber Telephone Plant, St. Croix.

Subproject 28X—Telephone Exchanges, Christiansted and Frederiksted.

At which time and place the proposals will be publicly opened and read aloud. Bids received after closing time of bid opening will be returned unopened.

Plans and specifications and other proposed contract documents in connection with the work to be performed are on file in the Engineer's Office, Charlotte Amalie, St. Thomas, U. S. Virgin Islands, the District Engineer's Office, 201 Banco Popular Building, San Juan, Puerto Rico and Room 1336, General Services Building, Washington 25, D. C. A set of such documents may be procured from the office of the Engineer upon the deposit of $10.00, all of which will be returned to bona fide bidders upon the return of plans and specifications in good condition, within seven days of date of bid opening.

Each proposal must be accompanied by a bid security in an amount not less than 5 percent of the total bid.

Bids will be accepted on any single subproject or project.

The successful bidder(s) will be required to furnish performance bond(s) in an amount equal to 100 percent of his (their) bid(s) and payment bond(s) in an amount equal to 100 percent of his (their) bid(s), such bond to cover full performance of the contract(s) and payment(s) for labor and materials.

No proposal may be withdrawn after the scheduled closing time for receipt of bids for at least 10 days.

The government reserves the right to reject any and all proposals and to waive informalities with respect thereto.

PERE F. SEWARD
Commissioner
(682)

KENDRICK PROJECT, Design Section, Casper, Wyoming, April 12, 1950. UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids or proposals on Specifications No. 7H-78 will be received at P. O. Box 280, Old Post Office Building, Casper, Wyoming, until 10 a.m. Mountain Standard Time, May 11, 1950, and then publicly opened by furnishing and delivering the concrete and reinforcement for Cheyenne Subdivision, Kendrick Project, Wyoming.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: A. A. Batson, Regional Director, New Customhouse, Denver, Colorado; and L. J. Matthews, Project Manager, P. O. Box 280, Casper, Wyoming. No charge to prospective bidders for copies of the specifications; to others $0.50 per copy, not returnable.

(688)

(Continued on page 96)

Contractors Watch This Section —

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS
(Continued from page 95)

Bids: May 31, 1950 (6993)

Sewage Treatment Plant, Intercepting and Outlet Sewers

THE LINDEN ROSELLE SEWERAGE AUTHORITY
LINDEN, N. J.

1 Sealed proposals for the construction of the herein described contracts of a pollution abatement project in the City of Linden, New Jersey, will be received by the Linden Roselle Sewerage Authority in the Council Chambers, City Hall, Linden, until 7:30 P.M. on Wednesday, May 31, 1950, and there publicly opened and read immediately thereafter.

2 The work will consist of providing all labor, materials, equipment and incidentals required for the construction of the following:

Contract I—Intercepting and outfall sewer: (Approx. 1400 L.F. of 30-inch R.C. Pipe, 1500 L.F. of 48-inch R.C. Pipe, 4500 L.F. of 60-inch R.C. Pipe and appurtenant structures.) *Contract II—Plant outlet conduit & Sludge force Main:* (Approx. 2600 L.F. of concrete flume, 26,000 L.F. timber piling, 2600 L.F. 24-inch R.C. Pipe, and appurtenant structures.) *Contract V—Sewage Treatment Plant General Construction:* (Primary treatment works including pumping station and including approx. 29,000 cu. yds. excavation, 8,500 cu. yds. of concrete, 285 tons of c.i. pipe and fittings, 1800 L.F. timber piling, valves, sluice gates, mechanical equipment and appurtenances.) *Contract VI—Sewage Treatment Plant superstructure:* (Six brick and concrete buildings, approximate volume 170,000 cu. ft.) *Contract VII—Structural Steel* (for plant buildings. Approx. 88 tons.) *Contract VIII—Heating and Ventilating* (for plant buildings.) *Contract IX—Plumbing Work* (for plant buildings.) *Contract X—Electrical Work* (at sewage treatment plant.)

3 Plans, specifications, bidding and contract documents may be examined at the office of the Consulting Engineers, Alexander Potter Associates, 50 Church Street, New York 7, N. Y., and there obtained upon the following deposits per set:

Contract I—Intercepting and outfall Sewer, $20.00. Contract II—Plant outlet Conduit and Force Main, $20.00. Contract V—Sewage Treatment Plant General Construction, $40.00. Contract VI—Sewage Treatment Plant Superstructure, $15.00. Contract VII—Sewage Treatment Plant Structural Steel, $10.00. Contract VIII—Sewage Treatment Plant Heating & Ventilating, $20.00. Contract IX—Sewage Treatment Plant Plumbing Work, $20.00. Contract X—Sewage Treatment Plant Electrical Work, $20.00.

Full refund will be made to actual bidders for return of one (1) set in good condition, within two weeks after closing date for receipt of bids. Refund for return of all other sets, in good condition, within the same period, will be fifty percent (50%) of the deposit. Plan deposit checks should be made payable to order of Alexander Potter Associates.

4 All proposals must be on the form furnished by the Authority.

5 All bids must be accompanied by a certified check or acceptable bidders' bond in the amount of ten (10%) per cent of the amount of the bid, made payable to The Linden Roselle Sewerage Authority. Said checks or bonds will be returned to the unsuccessful bidders not later than sixty (60) days after opening of bids.

6 The successful bidder in each of the several contracts will be required to furnish a Performance Bond conditioned upon the faithful performance of the Contract and upon the payment of all persons supplying labor and furnishing materials in the construction of the work.

7 No bidder may withdraw his bid within sixty (60) days after closing date for receipt of bids.

8 The Authority reserves the right to reject any or all bids and to waive any informality in the bid.

BY ORDER OF THE ACTING SECRETARY OF THE LINDEN ROSELLE SEWERAGE AUTHORITY
Charles H. Gross

DATED: April 27, 1950.

READ THE OFFICIAL PROPOSAL COLUMNS OF ENGINEERING NEWS-RECORD THIS WEEK AND EVERY WEEK

SEARCHLIGHT SECTION

This index is published as a convenience to the readers. Every care is taken to make it accurate, but Searchlight Section assumes no responsibility for errors or omissions.

Air Compressor Rental Co. 98, 104
Albert & Davidson Pipe Corp. 105
American Air Compressor Corp. 103
Anderson Co., Robert R. 102
Babcock Equipment Co., Inc. 105
Bendix Machinery Co., Inc. 102, 104
Bixby 97
Berkeley Distributors, Inc. 100
Boyce Co. 98
Boyer, R. H. 101
Brunson Instrument Co. 104
Buff 104
C & C Contracting Co., Inc. 104
Clemens Construction Co. 104
Cimco 100
Concrete Equipment Co. 100
Contractors Machinery Co. 101
Coshocton, Ohio, City of 98
Crothers, Ltd., Geo. 102
Cunningham-Ortmayer Co. 98
Drachman Steel Corp., Hy. 100
Equipment Corp. of America 101
Eveready Supply Co., The 102
Fabick Tractor Co., John 98, 104
Forsythe Equipment Co., Inc. 104
Foster Co., L. B. 105
Frank, M. K. 105
Frazer-Davis Const. Co. 105
Greensburg Machine Co. 100
Gilenbach Co., C. P. 105
Greenpoint Iron & Pipe Co., Inc. 105
Guille Machinery Co. 103
Guion, H. P. 100
Gurley, W. & L. E. 104
Halliburton Portland Cement Co. 100
Heehs & Son, E. D. 105
Hercules Electrical Machy. & Equipment Co. 103
Hickerson, Roy D. 104
Highway Machinery & Supply Co., Inc. 101
Hodge & Hammond, Inc. 100, 101, 103, 105
Imperial Coal & Construction Co., The 98
Jenks, Elwood M. 102
Jutton-Kelly Co. 103
Keesler, F. F. & C. S. 102
Keystone Driller Co. 105
Latham Construction Co. 104
Lewis, Harry C. 104
Liquidators Sales Co. 102
Lynn Engineering Co. 98
Malvern Gravel Co. 102
McKee & Co., Arthur G. 97
McLeod, L. 102
Midwest Fence Construction Co. 100
Mississippi Valley Equipment Co. 101, 105
Morrison Railway Supply Corp. 105
National Blue Print Co. 104
Nixon Machinery & Supply Co. 102
O'Herron Co., M. 98
O'Neill, A. J. 103
Parkinson & Son, R. A. 100
Paxton & Vierling Iron Works 96
Penn Machinery Co., Inc., H. O. 102
Queensboro Steel Corp. 102
Read Corp., Howard W. 102
Robinson, R. G. 100
Schoonmaker Co., Inc., A. G. 103
Seefeld, Otto P. 104
Shannon & Co., J. Jacob 100, 104
Smith Co., H. Y. 100
Smith Inc., L. B. 99
Suranno Construction Co. 102
Tamblyn System 97
Theilacker Co., J. C. 103
Tractor & Equipment Co. 103
Van Keppel Co., C. W. 103
Vulcan Iron Works 101
Walsh Co., Richard P. 101
Wamix, Inc. 100
Warren-Knight Co. 104
Weil & Co., J. H. 104
Weiss, B. M. 103
Williams Construction Co. 100
Wilson Engineering Corp. 97

EMPLOYMENT

REPLIES (Box No.) Address to office nearest you
NEW YORK 330 W. 42nd St. (18)
CHICAGO 520 N. Michigan Ave. (11)
SAN FRANCISCO 68 Post St. (4)

CIVIL SERVICE

WANTED ENGINEER, City of Washington, Missouri. Send complete qualifications, etc., to City Clerk, Washington, Missouri.

POSITIONS VACANT

WANTED EXPERIENCED Structural Designers capable of taking responsible charge of work. Salary Selective & Value. 102 Park Avenue, New York, N.Y.

BATCHING AND Concrete plant designer and production man, 35-45, preferably with Blaw-Knox or similar background for permanent position at San Antonio, Tex. Salary $500 month with 40 hour week and liberal profit sharing plan. P-821, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT experienced in all types building construction. Location Ohio. State age, experience, references and salary required. P-695, Engineering News-Record.

WANTED: ESTIMATOR on supplying bar, steel joists and steel window. Must be graduate engineer with bar supplying experience and thoroughly acquainted with bar specifications. Excellent salary and position. Apply especially. Position located in Ohio. Engineering News-Record.

EXPERIENCED STRUCTURAL steel Designers and shop detailers wanted capable of taking responsible charge. Liberal salary and overtime with Pacific Coast Fabricator. Write stating full particulars to Box 3147, 1031 Mills Tower, San Francisco 4, Calif. Engineering News-Record.

WANTED: REGISTERED Engineer experienced in designing Steel Mills and Concrete Structures for Industry in the Southwest. Must have had similar experience and be familiar with the latest practice and safety requirements. P-1411, Engineering News-Record.

WANTED
2 Structural detailer—checkers

Permanent jobs for good men with experience in all types of bridge and building work.

Apply by letter, giving resume of experience, also salary desired.

PAXTON & VIERLING IRON WORKS
P.O. BOX 1085 OMAHA, NEB.

POSITIONS VACANT

CONTRACTOR'S ENGINEER-Superintendent by a medium-sized general contracting company doing heavy construction work including bridges, highways, etc. Located within suburbs of New York City. Applicant must have previous experience with a general contractor taking off quantities, preparing estimates and supervising projects in field to completion. Must assume administrative responsibility from bidding to completion of projects. In reply state age, experience, references, salary desired and when available. P-834, Engineering News-Record.

CIVIL, ELECTRICAL and Piping Engineers required for design and supervision of construction of Air Base work in Japan and Far East. Must be thoroughly experienced and capable of assuming full charge in their respective fields. Furnish detailed record of education, experience, salary requirements and age in first letter. Write to W. K. Kingsley, Engineer-Manager, Tokyo, Japan.

(Continued on the opposite page)

A COURSE OF INSTRUCTION BY MAIL IN

STRUCTURAL ENGINEERING

Thirty-ninth Year

OUR COURSES HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations

- Complete Structural Engineering Course.
- Public Works Structures.
- Architectural Engineering.
- Special Course C (State Board Exams).
- Reinforced Concrete Engineering.
- Structural Steel Designing.

Monthly payments permissible. Information sent without obligation. WRITE TODAY

WILSON ENGINEERING CORPORATION

College House Offices • Harvard Square • Cambridge, Mass., U. S. A.

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal engineering service with years of unsolicited standing and reputation. The procedure, of highest ethical standards, is individualized to your personal requirements and designed to produce without initiative on your part, the right connection at the right position presented. Send your name and address for details.

R. W. BIXBY, Inc., 222 Dun Bldg., Buffalo 2, N. Y.

(Continued from the opposite page)

SELLING OPPORTUNITY OFFERED

SALES OPPORTUNITY for young engineer. Large manufacturer of power shovels and related excavating equipment has sales openings for young engineers. Splendid lifetime opportunity. Present openings in three districts. Location: Northern half of Southern States. Engineering graduate preferred. Send full details of background. SW-6214 Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL $3,000-$25,000. This confidential service established 1927, is geared to needs of high grade men who seek a change of connection under conditions assuring definite improvement. Don't apply for present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jenkins, Dept. E, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CIVIL ENGINEER, 25. Single. 4½ years experience varied construction. Chief Asst. on large clean sewer job. Available mid-May. Asst. Supt. heavy duty. Desires field work preferably foreign or travel. Available immediately. PW-6242, Engineering News-Record.

ENGINEER—SUPERVISOR—Mechanical, experienced Field Installations. Plant expansions, large construction projects U.S. Foreign work. Progressive record? Write Smith, Box 266, Sacramento, California.

ESTIMATOR 10 years experience in heavy and general construction, public utilities and industrial plants. Also P.E. with 10 years experience as structural engineer. PW-6412, Engineering News-Record.

SUPERINTENDENT — CONSTRUCTION — Young engineer, graduate, experienced in heavy industrial and institutional projects. Engineer, for architects. Salary $5000 up. PW-6401, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. Broad experience in power and industrial plants. Deep foundations, steel and concrete. Salary open. PW-6419, Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ENGINEER-EXECUTIVE—CE and ME background, good engineer and administrator, 22 years of experience in design, construction and operation of steam power plants, hydro-electric plants, steel mills, and industrial plants. Desires position with responsibilities in connection with industrial development, engineering, or contract work, foreign or domestic. PW-6234, Engineering News-Record.

ASSISTANT CONSTRUCTION Engineer. Graduate Civil Engineer, 3 years experience. Some finished work. Salary open. Will travel. PW-6416, Engineering News-Record.

MECHANICAL SUPERINTENDENT. Thoroughly experienced engineer with broad knowledge of design, construction and operation of steam power plants, hydro-electric plants, steel mills, and industrial plants. Desires connection with responsible organization engaged in Latin American operations. Speak Spanish fluently. Will go anywhere. Interested only in permanent connection. PW-6235, Engineering News-Record.

(Continued on the following page)

WANTED

SALES ENGINEER

Industrial Engineering Sales Manager with potential abilities for General Manager. Must be top notch sales executive with knowledge of engineering and production methods. To be capable of selling available additional plant capacity to heavy equipment manufacturers. Must have ability to enlarge present small sales organization. We have been established nearly a century, fabricating steel products for construction machinery industry. Location central Ohio. Excellent opportunities for sales expansion and promotion to General Manager with very good salary. In first letter give age, experience, education, salary expected. Our executives know of this ad.

SW-6283, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

ESTIMATOR

Experienced ENGINEER, familiar with Oil Refinery design and capable of estimating process equipment from flow diagrams.

Give full information, experience record and salary expected.

ARTHUR G. McKEE & CO.
2300 CHESTER AVE.
CLEVELAND 1, OHIO

WANTED SUPERINTENDENT

for sewage and waterworks by old and well established firm, operating principally in Indiana, but planning expansion. Write only for interview. State age, experience, qualifications, reference and salary expected.

P-2518, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED SUPERINTENDENT

For Sewage and Water line construction operating principally in Indiana. Write only for interview, giving experience in the above line of work, age, reference, salary expected.

P-6318, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

GRAVEL PLANT SUPERINTENDENT

Wanted for operating and managing portable and permanent plants in Indiana and Michigan. State experience, references and salary.

P-6206, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEER, LICENSED
in New York State

Also Sales Engineer

Experienced in bridge construction and alterations. Permanent position for right man. Reply stating experience to

P-6106, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

LEARN TO ESTIMATE

Today, more than ever before, you must know how to analyze building costs. If you want to become a successful builder, learn how to prepare a correct estimate in a hurry. Get in on the profitable work now available wherever you turn. Your success is assured if your estimates are right; otherwise you are licked before you start.

The **Tamblyn System of Estimating** will make a real estimator out of you in a few weeks of your spare time. We are so sure that you will want to learn it, that we will send you our complete home study course for ten days examination absolutely free. If you don't think it is the finest thing you ever saw, just return it and it won't cost you a cent. If you like it and want it, send us $8.75 when 10 days are up and $7.50 per month until $38.75 is paid.

This estimating system is based on forty years of actual construction experience. It has been sold all over the world for more than twenty years. Thousands of estimators and contractors swear by it. Our offer isn't hot air and big talk. We don't give you a diploma or a lapel button, but we do teach you down to earth estimating which will bring you profitable business.

Just send your name and address today, and we will mail you the complete course at once for your approval.

TAMBLYN SYSTEM

1115 So. Pearl St., E-402
Denver, Colo.

WANTED

PROJECT ENGINEERS
FIELD ENGINEERS

and inspection staff by large, long established engineering organization for long term water development program in Texas and Oklahoma areas. Supervisory and inspection staff must be experienced on dams, powerhouses, water supply, and irrigation. Vacancies include resident engineers, layout engineers, concrete technicians, field accountants, surveyors, and inspectors. Resident engineers must be college graduates qualified by ample experience to take complete charge of engineering on large contract projects under Chief Engineer. Please submit completely detailed personal, education, and experience record and salary requirements with first letter. All replies strictly confidential.

P-6413, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ESTIMATOR Wanted

Experienced in heavy Grading, Paving, Sewers and Bridges. Splendid opportunity with growing concern. Location Long Island, New York. State age, experience, salary, and full particulars.

P-6041, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED
(Continued from preceding page)

CONTRACTOR'S RIGHT Hand Man. Estimator, office engineer, C. E. grad. 11 yrs with contractor heavy construction, subways, tunnels, etc. Executed all phases contractors work. PW-6356, Engineering News-Record

CONSTRUCTION SUPERINTENDENT or Branch Manager. Heavy foundation or water front work, all types including piling and sheeting. Prefer midwest location. PW-6361, Engineering News-Record

AMBITIOUS CHIEF Accountant, Controller. Twenty-five years with leading engineering and construction firm. Knows corporate setups, finances and costs all types construction. Broad experience large joint venture and cost plus fixed fee projects. Employed but desires change, references and bond. Go anywhere. PW-6411, Engineering News-Record

GRADUATE CIVIL Engineer, 27, married. Three years engineering experience with the U. S. Government desires field or office position in east or middle-west. Available August 1st. PW-6368, Engineering News-Record

CONSTRUCTION ENGINEER, 38. 15 years practical construction experience on industrial plants, hospitals, masonry, earthwork, mass concrete foundations, etc. 3 years as concrete products plant mgr. Good knowledge of construction methods, estimating, cost and supervision. Prefer position of responsibility with aggressive construction organization. PW-6367, Engineering News-Record

CONSTRUCTION SUPERINTENDENT or General Foreman desires position on foreign project, nature of which requires high degree of resourcefulness, ingenuity and ability to improvise. Am thoroughly versed with reinforced concrete building construction, housing projects and have had considerable earth moving experience. Have held position of Supt. in charge of million dollar projects in U. S., Greenland, Hawaiian Islands, Japan and Guam. Thoroughly capable leading, housing and providing for welfare of men in my charge. Now employed as Bldg. Supt. in U.S., but prefer foreign job which would offer difficulties and problems not encountered in domestic work. PW-6329, Engineering News-Record

STRUCTURAL ENGINEERS—P.E. N.Y. state. Experienced in design of steel and concrete structures. Desires free lance work on fee or hourly basis. PW-6295, Engineering News-Record

GEN'L SUPT.—Construction Mgr. Actual job site and office management, supervision of job staffs, specialized trades and sub-contractors operations. Diversified industrial plant, alterations and new bldgs., open foundations, caissons, basements and bridges, tunnels, sewer and sewage improvements, hydro-steam power utilities, dams, rapid transit subways, trackless R.R. grade separations, sewage disposal and pumping, airports and hydro-electric projects, earth and rock excavation equipment, installations. Background commenced as station boy, geared by practical experience for all field phases large and medium multi-divergent projects from inception to completion, cost and profit minded. Over twenty years in complete charge. Candidate interested in top level contractors and engineering firms, all replies confidential. Excellent references. Executive type. PW-6420, Engineering News-Record

GRAD. C.E. structural age 28, 2½ yrs reinforced concrete design and sewer work with a sanitary consultant, 9 months highway survey. Midwest preferred. PW-6347, Engineering News-Record

EXPERT MALE Office Assistant, experienced Chief Clerk, Assistant Executive Manager, Secretary. Efficient, prompt in performing duties. Engineering or construction industry. PW-6346, Engineering News-Record

CIVIL ENGINEER, grad. 31, married. 10 yrs experience in design and operation of water and sewer systems and structural design of reinforced concrete structures design. Avail Dec. to date. Pres. sal. $4400. Consider Canada or domestic location. PW-6355, Engineering News-Record

PART TIME WORK WANTED

ENGINEER SKILLED steel designer. Know construction methods, costs and contracting practices. Let's discuss your needs. Box A-67, Philadelphia 5, Pa.

PART TIME WORK WANTED

LAYOUT DESIGN. Estimates. Specs. Plants, material handling, buildings, industrial structures. Timber, steel, concrete. Technical P.E. PTWW-6191, Engineering News-Record.

BUSINESS OPPORTUNITY

Calif. Registered

Civil Engineer desires association with established engineer considering retirement. Prefer western or southwestern United States. BO-6385, Engineering News-Record.

PATENT ATTORNEY

Patent Practice

before U. S. Patent Office. Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommell, Registered Patent Attorneys, Suite 4-6, 815-15th Street, N. W., Washington 5, D. C.

BUSINESS OPPORTUNITY

Patented Machine

washes sonstan blinds. Highly profitable. Visit one of 50 successful plants near you. Free Booklet. $6350.00 in 24 payments. C. C. Equipment Co., 1013 S. 44th St., Phila. 4, Penna.

SUBMERGED PIPE LINE CONSTRUCTION
BOYCE COMPANY
Phone 3-2530 Clearwater, Fla.

EXCAVATION WORK
Wanted for 5 shovels, 2 bulldozers, road grader, and 7-10 yard dump trucks. Will take sub-contract or yardage basis. Anywhere in the United States or Foreign. Or will rent any piece of the above equipment. Write to
IMPERIAL COAL & CONST. CO.
Box 346, Rupert, W. Va. Tel. 26 R 5

WANTED
HYSTER WINCHES
Towing or Worm Drive
Models D8N—D7N—D6N and D4N
JOHN FABICK TRACTOR CO.
3100 Gravois St. Louis 18, Mo.
Phone: Laclede 8900; L.D.—5

WANTED
400 Lineal feet 7" Pumpcrete Pipe
complete with fittings
W-6399, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WE BUY OR SELL
All Types of
TRENCHING MACHINES
AIR COMPRESSOR RENTAL CO.
19615 NOTTINGHAM RD. CLEVELAND
Kenmore 1-8000

ADNUN BLACKTOP PAVER
Serial No. 1150. Hydraulic Controls
GOOD CONDITION
PRICE $4500.00
M. O'HERRON CO.
PITTSBURGH 24, PA.

OSGOOD "CONQUEROR"
1¼ yard capacity
CLAMSHELL OR DRAGLINE
Good condition—very reasonable
for details consult
Cunningham-Ortmayer-Company
1229 S. 41st St. Milwaukee, Wis.

Legal Notice

1. SEALED BIDS for the sale of
BOILERS AND STEAM POWERED
ELECTRIC GENERATING EQUIPMENT
WITH APPURTENANCES
will be received by the City of Coshocton, Ohio, at the office of the Director of Public Service in the City Hall, Coshocton, Ohio until

12 O'CLOCK, NOON,
EASTERN STANDARD TIME
THURSDAY, MAY 25, 1950

and at that time and place will be publicly opened and read aloud.

2. The equipment which is no longer required, and is being offered for sale by the City of Coshocton, consists in general of the following boilers and generating equipment with appurtenances now situated in the existing Waterworks power plant of the City:

a. 2—each 150 H.P. Erie City water tube boilers with automatic stokers powered by 2 5 H.P. electric motors with one spare motor, 2—duplex steam powered feed water pumps, feed water regulators, 2—Cochrane feed water heater, zeolite water softening unit.

b. 2—each 250 H.P. Skinner Engine Company universal Uniflow steam engines connected to 175 K.V.A. generators with exciters.

c. 1—Power and Light switchboard with Voltage Regulator.

d. Steam Piping and miscellaneous small water piping and conduits with wiring.

3. All bids shall be submitted in letter form to the said Director, shall be on the basis of the purchase by the bidder of the equipment, as said equipment is now installed and shall include the removal of the equipment by the bidder from the existing power plant to the place of disposal by the bidder.

4. All bids shall be signed, shall state the prices for the items and labor separately, and shall be enclosed in a sealed envelope marked "Bid for Purchase and Removal of Existing Power Plant Equipment."

5. Each bid must contain the name of every person, firm or corporation interested in the same and shall be accompanied by a certified check on a solvent bank, in the amount of 50% of the bid, made payable to the City of Coshocton, Ohio, as a guaranty that if the bid is accepted a contract will be entered into. The remaining 50% of the purchase price shall be paid to the City prior to the removal of all of the equipment. Successful bidder must provide Public Liability and Property Damage insurance with limits satisfactory to the Director of Public Service, and Workmen's Compensation Insurance. Unsuccessful bidders' checks will be returned within 15 hours of the scheduled time for opening of bids.

6. The City of Coshocton, Ohio reserves the right to reject any or all bids, to waive any irregularities in bidding, and to accept the highest and best bid.

By order of the Director
of Public Service
City of Coshocton, Ohio
Russell W. Hanlon, Director

BROWNING TRUCK CRANE
SACRIFICE $5500.
Mounted on White Prime Mover, 10 wheel, triple axle drive with outriggers. Located in N. J.
FS-6328, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

STORAGE BATTERIES
FOR SALE
24—Exide locomotive type TLM27 60 cells 120 volts, new in 1948-49; some never used. New price $6200 ea. Will sell for $3400.00 ea. with box, guaranteed.
LYNN ENGINEERING CO.
900 Russ Bldg., San Francisco, Calif.
Phone GA 18451

ATLAS DIESEL ENGINE
Used, Model 5EN668, 5 cylinders 9" Bore x 10½" Stroke, 200 H.P. at 514 R.P.M. with Air Compressor. Starter and Compressor excellent condition, located at Teterboro, N. J.
FS-6339, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

L.B.SMITH INC.

OFFERS

SHOVELS—CRANES

Lorain 79 diesel powered 1½ yd shovel. Caterpillar D13000 engine.

Lorain 77 diesel powered 1½ yd shovel and crane. Caterpillar D13000 engine.

Marion 1 yd diesel powered heavy duty truck crane on heavily reinforced Mack.

Lorain 40B ¾ yd shovel-clam, new 30" cats.

P&H Model 100 ⅜ yd. shovel.

SHOVEL & CRANE ATTACHMENTS

Lorain 75 shovel attachment.
Chain crowd L-40-41 shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Lorain 40 Hi-Lift shovel attachment.
Bucyrus-Erie 30B tunnel front attachment.
Koehring 301 dragline fairlead.

Backhoe Buckets & Attachments

¾ yd Lorain, 40, LBS☓6105, 44" cutting width, teeth, sheave.
27" outside width drop bottom type LBS ☓1033, good condition.
28" outside width solid bottom type LBS ☓4377, good condition.
¾ yd Amsco 40" cutting width, LBS ☓8101.
Lorain 30 hoe attachment.

NEW TAGLINES

McCaffrey Model 648 for 1¼ to 2 yd crane.
McCaffrey Model 636 for ¾ yd to 1 yd crane.

SHOVEL DIPPERS

Lorain 41, ¾ yd, LBS ☓7433, new condition.
New Lima 1 yd, Amsco, LBS ☓2295.
Bucyrus-Erie 1¼ yd gas air, LBS ☓3782, fair.
Lorain 75 manganese 1¼ yd, LBS ☓7233, teeth and bail.
Lorain 75B, 1¼ yd extended lip, 1¼ yd LBS ☓2260.
Pettibone-Mulliken 2 yd Lorain 82 or 820 manganese, LBS ☓5361.
Pettibone-Mulliken 2 yd for 3500 Manitowac LBS ☓5763.

CLAM—DRAG—SCRAPER BUCKETS

AIR COMPRESSORS

Worthington two-stage, water-cooled, vertical 250☓ 60 CFM, new condition.
Ingersoll-Rand 105 cubic foot, Waukesha gasoline power, on two rubber tires.
Gardner-Denver 105 cubic foot with air receiver, hose reel, driven by power take-off and mounted on 1941 Ford.
Gardner-Denver air-cooled 105 cubic foot with air receiver, V-belt drive from power take-off and mounted on 1942 Ford chassis with Wood two-yard dump body.
LeRoi 2-stage 105 cubic foot air-cooled, skid mounted, built-in tool boxes, hose reels and hose.
Gardner-Denver two-stage 160 cubic foot skid mounted.
Schramm 210 cubic foot with International UD14 diesel.
Worthington 210 cubic foot, two-stage, air cooled, on steel wheels with Hercules diesel.
Chicago Pneumatic 210 cubic foot, two-stage, air-cooled, Caterpillar diesel on four rubber tired wheels.
Gardner-Denver 315 cubic foot two-stage, skid mounted, Murphy four-cylinder diesel.
Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven 50 HP slip ring motor.
New Gardner-Denver 500 cubic foot two-stage water-cooled, D13000 Caterpillar diesel on 4 pneumatics. Used 2 months.

QUARRY EQUIPMENT & BINS

18 x 36 Farrell deep jaw crusher.
10 x 36 Cedarapids, practically new.
10 x 7 Allis Chal. Blake type jaw crusher.
Cedarapids No. 1 Kubit.
60 ton 2 compartment storage bin with clam shell gates.
New 16 x 16 double clamshell gates.
20" x 66" Belt Type Magnetic Separator.
Conveyors—18"—24"—30"—36".

TRUCKS—TRAILERS

1½ ton Ford & Chevrolet.
2½ ton GMC. New and rebuilt.
Sterling COE Model 255GCS tandem drive tractor 9.00x24 tires, 200 HP Cummins supercharged diesel, complete with 40 ton Rogers low bed equipment trailer, 16—7.50x20 tires, airbrakes, outriggers, excellent condition.
2,000 gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.
6x6 7½ ton Reo

GASOLINE AND DIESEL ENGINES

New IXD Hercules Gasoline.
Buda, Hercules, Hill diesels, rebuilt.
New and rebuilt Murphy diesels.
GM 6 and 12 cylinder diesels, practically new.

CONCRETE ROAD BUILDING & MISCELLANEOUS CONCRETE HANDLING EQUIPMENT

Pavers & Mixers

27E Koehring Paver.
Jaeger 3 yd hi-discharge truck mixer.

Concrete Finishers

Jaeger type "L" double screed, 10½'-12½', rebuilt.
Heltzel 10'-12' finisher, rebuilt.
Blaw-Knox gas-electric 10½'-12½', rebuilt.
2 Koehring 10'-12', rebuilt.

Concrete Spreaders

Blaw-Knox type SA 10'-15' spreader. New condition.

Concrete Road Forms

830'—Truscon 7"x8" forms, with stakes.
1380'—Heltzel 7"x8" forms, with stakes.
1300'—Blaw-Knox 8"x8" forms, with stakes.
4450'—Heltzel 9"x8" forms, with stakes.
1430'—Heltzel 10"x8" forms, with stakes.
1010'—Blaw-Knox 10"x8" forms, with stakes.

Fine Grade Machines

Flynn surgrader 10'-12', rebuilt.
R.B. Fine Grader for 21' width, rebuilt.

Form Graders—2 of each

Cleveland formgrader, new condition.
Carr formgrader, new 1944, rebuilt.

ROLLERS

Buffalo-Springfield tandem, Model KT7, 3-5 ton.
Apsco Model T34, 3-4 ton tandem.
Austin-Western, 5-8 ton tandem.
Apsco trench roller.
Hercules 9-11 ton, three-wheel.
Buffalo-Springfield 10 ton, three-wheel.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW alternating and direct current, gasoline and diesel powered.

GRADERS

New Warco D76 tandem driven grader, 12' blade. V-type scarifier, 13.00x24 tires all around, 24,500 lbs., International UD14A diesel engine.

TRACTORS

FD Cletrac crawler tractor, Buckeye bull dozer & double drum power control unit, DHXB Hercules diesel engine. Rebuilt, immediate delivery.

International TD-9 with Bucyrus-Erie angle dozer.

Minn-Moline UTI wheel type, gas powered with Lull front end shoveloader.

Phone HARRISBURG, PA. 7-3431

LASTING • BONAFIDE • SERVICE
L.B. SMITH, INC.

L.B.SMITH INC. CAMP HILL, PA. SUBURB OF HARRISBURG

WE OWN THE EQUIPMENT WE ADVERTISE

• STRUCTURAL STEEL SHAPES •

New and Used—Immediate Delivery

At present our inventory of steel shapes and forms includes a full line of both new and used steel especially for heavy construction work. 4" I beam to 36" Girder Beam.

BEARING PILE SECTION

Stock list on request. Write, wire or phone.

HY DRACHMAN STEEL CORPORATION

Warehouse
14-23 34th Ave., Astoria L. I., N. Y.
Astoria 8-8023; 8-4484-5

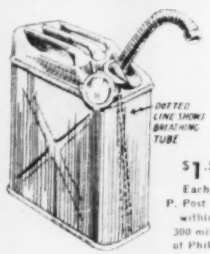
Sales Office
563 E. Tremont Ave., New York City, N. Y.
Cypress 9-5440-1

FOR SALE OR RENT

ALL LATE MODELS

1—N.W. Shovel 2½ c.y. Model 80D
1—N.W. Shovel 1½ c. y. Model 6
5—DW 10's—3000 hrs. or less
1—Caterpillar D8 Angledozer
1—Caterpillar D7 Bulldozer

Williams Construction Co.
Box 145, Middle River
Baltimore 20, Md.
Phone—Essex 1310



$1.50 Each
P. Post 75¢ within 300 miles of Phila.

U. S. ARMY **5 GAL. JEEP CANS**

COMP. WITH NEW 15" DETACHABLE FLEXIBLE SPOUT

A rugged can for fuel and oil storage for field equipment. Can is used but in good condition. Spout is new with breather rod and breather tube.

12 Cans	$ 15.00
48 Cans	$ 54.00
100 Cans	$100.00

F.O.B. Phila.

Rated Firms Open Account—Others Send Check

J. JACOB SHANNON & CO.
214 N. 22nd St., Phila. 3, Pa.
The Oldest Equipment House in Philadelphia

FOR SALE

Airfield Steel Landing Mats
Interlocking Type
FOR CONTRACTORS USE
3200 Pieces
1⅛"x15½"x120"
Weight per unit 65#

Sold in separate units or total lot
Prompt Shipment

CIMCO 2432 West Third St.
Cleveland 13, Ohio
PR aspect 1-5555

TRUCK CRANES

1—P & H with 80 ft. boom & 30 ft. jib. Ser. No. 5808.
1—P & H with 80 ft. boom & 30 ft. jib. Ser. No. 5809.
Excellent condition—perfect working order
Located Boston. Inspection by appointment

R. G. ROBINSON
P. O. Box 5 Allston 34, Mass.
Phone: Algonquin 4-8411

FOR QUICK SALE

5—Super-C Turnapulls with L. P. Scrapers, 15 cu. yd.
2—Super-C Turnapulls with 210AW Tournatrailers
1—210AW Tournatrailer unit only

Location — Pennsylvania. Generally good condition. Entire lot offered at very attractive figure.

FS-6016, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

NEW and REBUILT
STORAGE BATTERY

LOCOMOTIVES

1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

PUMPCRETES

Rebuilt Current Models
For Sale or Rent
CONCRETE EQUIPMENT COMPANY
312 E. Wisconsin Ave.
Milwaukee 2, Wis.

FOR SALE
IN CORPUS CHRISTI, TEXAS

Located centrally for local and ship channel
P & H Model 1055 LC Crane Crawler
Mounted 100 ft. boom and 25 ft. gib
250 HP Buda Diesel A.C. combination
HALLIBURTON PORTLAND CEMENT COMPANY
P. O. BOX 1200 CORPUS CHRISTI, TEXAS

DREDGES

H. P. GUION
303 West 42nd St. New York 18, N. Y.
Phone: Circle 6-0919

FOR SALE

1—1½ Cu. Yd. Amsco Shovel bucket, new, complete with teeth and sheave for P & H Shovel. Price $1450.00

Phone Williams 1-8600
Hillsgrove, Rhode Island

FOR SALE
ONE JAQUES EARTH BORING MACHINE

Model HM with Turntable mounted on GMC 6x6 all wheel drive. Truck also equipped with 12,000 lb. Tulsa Winch and Headache Rack as well as special steel body built on the machine. Equipment purchased new September 1945, used 4 months and is in good condition.

MIDWEST FENCE CONSTRUCTION CO.
1252 S. Vandeventer Ave. St. Louis 10, Mo.

SHOVELS & CRANES

1—Northwest Model 280—2 yd. diesel shovel
2—Northwest Model 6—shovel and crane
2—Northwest Model 25—crawler crane, shovel, Pullshovel
1—Lorain 2 yd. diesel shovel

HODGE & HAMMOND, INC.
1400 E. 156 St. New York 56, N. Y.

FOR SALE

1—Robinson Air Activated Conveyor Tank

WAMIX, INC.
4839 Bengal Street, Dallas, Texas

LOWBED TRAILER

solid tire Fruehauf 30 to 40 ton good condition. Alright for contractor, industrial plant or Shipyard.

C. C. & F. F. KEESLER
1515 Lincoln Ave., Prospect Park, Pa.
Phone Ridley Park, 6605

LIFTING BLOCKS

75—Single, Triple, and Quad, 18" sheave blocks, new, 1" cable, 2" pin, forked and swivel shackle. Price: $15.00, $36.00, and $48.00.

R. A. PARKINSON & SON
519 N. Delaware Ave. Philadelphia 23, Pa.

New Guaranteed . . . 60 TON
HYDRAULIC JACKS
Navy Surplus
ILLUSTRATED CATALOG **60% off**
BERKELEY DISTRIBUTORS INC.
to JOHNSON AVE. HACKENSACK, N. J.

Shovels, 1½ to 10-yd., diesel, elec., gas.
Dragelines, 1½ to 5, 12-yd., diesel, elec.
Locomotive cranes, diesel, 25, 30, 40-ton.
Locomotives, 7, 50 tons, diesel, gas, steam.
Porter, Vulcan 18-ton steam 36" ga. locos.
Crushers: gyratory, jaw, rolls, mills (8).
Pioneer portable crushing, screening plant.
Euclids, 15-ton rear dumps; 16 yd. bottom.
Trench Excavators: Barkeye, Parsons, Austin (16).
B-Erie shovel front att., 2-1½ yd., 528-550.
H. Y. SMITH CO., 828 N. B'way, Milw. 2, Wis.

ROAD FORMS
Blaw-Knox 3000 ft. 9"x20". NEW.
Blaw-Knox 10000 ft. 8"x8". NEW.

ROAD ROLLERS
Buf-Spring, 5 to 7 tons. Tandem.
B.S tandem 1 axle 10-14 tons.
Hercules, 3 wheel 10 tons.

GRADERS—MIXERS—FINISHERS
Adams Model 412 Motor Grader.
Austin-Western Model 99-M Auto-Patrol Diesel.
B-G Model 879 Asphalt Finisher with extensions.
Koehring Model 34-E Twin Batch Paver.
Ransome 34-E Dual Drum Paver. Diesel Power.
Koehring longitudinal Finishers 20-24 ft.
Rex 1 yd. Transit Mixer on 1½-2½ ton chassis
1 Ransome 1½ yd. Hi-dump transit mixers.
2 Jaeger 5 yd. Transit Mixer, unmounted.
1 Jaeger 2-yd. Transit Mixer on Mack 10 ton.
1 Jaeger 6 yd. Transit Mixers on Diesel Autocars.

CONCRETE PLANTS AND STORAGE BINS
Johnson 4 Compt. agg. 2 cement, 4 yd. batcher. 100 bbls. cement silo semi-auto controls, etc.
Butler cement bin 105 bbls. Complete.
Aggregate bin 105 tons 5 compts. No batcher.
Butler 300 ton, 2 compt. aggregate, one cement.
Johnson 5 compt. 150 ton aggregate bin.

ASPHALT PLANTS
Maxdec 1000 lb. Comp., 1000 lb. Complete.
Barber-Greene 830-840 Hot Mix.
Barber-Greene Model 838 "Travel Plant".
Barber-Greene 842 Portable Utility Plant. Complete.

ROCK CRUSHING & SCREENING PLANTS
Diamond Model 65 Portable Crushing & Screening.
Cedar Rapids Portable "Pitmaster". Complete.
Pioneer Model 36 Portable Crushing Plant.
Cedar Rapids 2-A Portable Crushing & Screening.

PUMPCRETES
REX 160-180-190-200 with fittings.

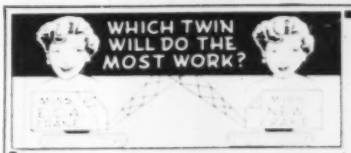
SHOVELS—CRANES—DRAGLINES
Koehring 605 Crane-Dragline Diesel 90' Bm.
Lima 604 1½ yd. Diesel Shovel. Practically new.
Lima 604 Diesel Crane, new 1948, 100' bm.
P&H 655-B Diesel Shovel, New 1947.
Marion 111M High Lift Diesel Shovel, 3 yds.
Manitowoc 4000A, 1-¾ yd. Shovel Dragline.
Page 625S Dragline, Diesel, 6 yd. 133' boom.
Lorain 30 Comb. Complete, ¾ yd.
Lima 1201 High Lift Diesel Shovel.
Lima 1201 1½ yd. Shovel and Crane.
P&H Model 1055 High Lift Shovel. Buda Diesel.
Northwest 80D 2½ yd. Diesel Shovel. 1946.
Northwest Model 8, 2 yd. Diesel Crane-Dragline.
Northwest Model 6, Diesel Shovel 1½ Yd. New 1948.

TRACTORS
1 Cat. D8, Completely rebuilt. Angledozers.
1 Cat. D8, 2U series DDPCU & stg. blades.
5 Cat. D8, 8R series DDPCU & stg. blades.

TRENCHERS
Barber-Greene Model 440.
Parsons Model 200 wheel type approx. 2 yrs. old.
Buckeye Model 160 Capacity 16' deep 42" width.
Cleveland Trencher, Model 95.

STIFF LEG AND GUY DERRICKS
American stiff leg 40 to 50 tons 80' boom.
American 20 ton stiff leg 90 ft. bm.
American 15 ton stiff leg 65' boom.
Stiff leg derrick 15 tons 100 ft. boom.
American 20 ton Guy derrick 100 ft. boom.
Lambert Guy derrick 20 ton, 110 ft. boom.
Railroad 50 ton derrick car. Bridge construction.

RICHARD P. WALSH CO.
30 Church St. New York 7, N. Y.
Cable RICHWALSH COrtlandt 7-0723-4



The only difference between new equipment and E.C.A. REBUILT equipment is the price. WHY PAY THE DIFFERENCE?

CRAWLER CRANES, DRAGLINES AND SHOVELS

DERRICKS

AIR COMPRESSORS

PUMPS—CENTRIFUGAL
Electric—Horizontal

Electric—Vertical

Gasoline

LOCOMOTIVE

WE OWN 15 CRANES NOT SHOWN ON THIS LIST. SEVERAL CRANES LISTED ARE IN OUR RENTAL DEPT. ONLY.

PARTIAL LIST ONLY—SEND FOR NEW STOCK LIST—JUST PUBLISHED

WE BUY—REBUILD, SELL AND RENT

Schaff Bldg., 1503 Race St. PHILADELPHIA 2, PA. Phone Kitty Hawk 6-1664

1155 So. Washtenaw Ave. CHICAGO 12, ILL. Phone NE vada 8-2400

30-J Church St. NEW YORK 7, N. Y. Phone Worth 2-0016

P.O. Box 933-J PITTSBURGH 30, PA. Phone Federal 1-2000

• EQUIPMENT CORPORATION of AMERICA •

EQUIPMENT FOR SALE

One (1) Rebuilt Ransome 34-E dual drum paver equipped with 6 cylinder Buda diesel engine, electric starting, cable controlled bucket, charging skip, 60 gallon water tank, 200 gallon auxiliary water tank, batch meter with counter and 16" crawler treads. Machine serial #12273, batch meter reading 32309.

One (1) Rebuilt Ransome 34-E dual drum paver with 6 cylinder Buda diesel engine, electric starter, hydraulic controlled bucket, charging skip, 60 gallon water tank, 200 gallon auxiliary water tank, 3" centrifugal pump, batch meter with counter and 16" crawler treads. Machine serial #12845, batch meter reading 30757.

HIGHWAY
Machinery & Supply Co., Inc.
1724 Altamont Ave. Richmond, Virginia

VULCAN
PILE HAMMERS AND EXTRACTORS
NEW OR FACTORY REBUILT
FOR SALE • • • FOR RENT
327 N. BELL AVE., CHICAGO, ILL.

Pile Driving Equipment

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Pile Driving Accessories
Drop Pile Hammers and Caps
Steel Sheet Piling

CONTRACTORS MACHINERY Co.
2637 Southwest Blvd. Kansas City 8, Mo.
Phone Valentine 4740

FOR SALE

30 ton Orton diesel locom. crane new 1942
50 ton Whitcomb diesel elec. loco. new 1942
30 ton Davenport diesel loco. new 1942
20 Koppel 20 yd. air dump cars
800 ft. Chic. Pneu. elec. compressors new 1947
150 HP Kewanee portable boilers
2½ yd. Bucyrus 54B dragline new 1948
2 yd. P&H 855 dragline new 1948
100 HP American 3 drum elec. hoist

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St. St. Louis 1, Mo.

FOR SALE

LOCOMOTIVES
2—Plymouth 15 Ton Diesel 16" GA—New 1947. 250/39-40
2—Whitcomb Gas. 6 ton, 24" gauge
1—Brookville — 8 ton Gas—Std. Ga. — Bargain NEW 1948
Davenport 10 Ton—16" GA—Diesel—Used 90 Days
Brookville — 10 Ton Diesel — 30" GA. — Used 900 Hours.

1—Plymouth 44-ton Diesel-Electric #4347 New June, 1942.
1—G.E. 70 ton Diesel-Elec. 4-Motor—35000# T.E. #13199. New Nov. 1941.
Both locomotives in excellent condition and attractively priced. Std. Ga.

COMPRESSORS
1—IR 2000 — 3-60-2200 — 1127-8-5

DERRICKS
1—American S.L. 10 ton—75' boom.
1—American 20 ton Stiff Leg—135' boom—complete with American 250 H.P. 3 Drum Gas Hoist with Swinger. NEW.
American 25 ton Guy Derrick — 115' mast — 100' boom—like new. Model 25—100.

CARS
25—20 ton—4 pocket—Hopper Cars.
18—Western 20 yard—Air Dump.

R. H. BOYER
2005-13 W. Bellevue St., Phila. 40, Pa.
Phone Sagamore 2-7132

Scoopmobiles & Buggymobiles
NEW & USED
For Sale or Rent
HODGE & HAMMOND, INC.
1100 E. 156th Street, New York 59, N. Y.

NEW WAR SURPLUS UTILITY TRAILERS

$79.50 Ea — 3 or More $75.00 Ea

This trailer is excellent for mounting air compressors, welders, and light plants. Also a utility trailer which can be attached to a pick-up or passenger car for all sorts of light tools, equipment and material hauling. Capacity 1 ton. Four pneumatic Firestone tires, size 9.00x9. Timken bearing wheels, heavy steel frame. Originally designed for the army as a bomb trailer.

SPECIFICATIONS—57" from front to rear axle, 29½" width between wheels, 93" overall length, 42" overall width. Weight 461 lbs. Complete with tires, Firestone, 6.00 9.4 Ply, Timken bearing wheels.

JACKS

NEW RATCHET LEVER

15-TON JOYCE No. 1928-A

15 Ton Ratchet Lever Jack. Automatic Lowering Ratchet Jack. 15 Ton Capacity. Height closed 28". Rise 19". Wt. 94 Lbs. 60" Handle. Extra heavy base with feet forged to the rack bar, insuring maximum strength at this point.

$22.50 EACH — $18.00 EA LOTS of 6

List Price About $72.00

CABLE SLINGS

SINGLE CABLE SLINGS

20 Ft. Long. Basket opening 3' x 5½". ½" Wire Cable. New — in original package.

$12.00 EACH

DOUBLE CABLE SLINGS

25 Ft. Long. Double rope steel cable, ½" diameter cable. New — in original package. 2 Hooks. Regular Retail Price $75.00.

$18.00 EACH

TERMS: Net 10 days to rated concerns. Others please send check with order. All items F. O. B. Cincinnati

LIQUIDATOR'S SALES CO.
1610 READING ROAD
CINCINNATI 2, OHIO

CONSTRUCTION ITEMS FOR SALE

1—Rex Model 160 Single Pumpcrete, with remixer, 600' 6" pipe, accessories, excellent condition new 1947.
1—Archer Heavy Duty single well tower, 84' 6" high, platform, 1¼ yd. concrete bucket, 1¼ yd. hopper, Chicago Boom.
1—Mixermobile, 2 cu. yd. mixer, 45' tower, mounted on Ford Truck Chassis, good condition.
1—Scoopmobile, 1947 model, ¾ yd. scoop, ½ yd. concrete hopper, 10' track extension.

WIRE — CALL — WRITE

NIXON MACHINERY & SUPPLY COMPANY, INC.
1300 Carter St. Chattanooga, Tenn.

1-10" 250 HP. Diesel Dredge, new approx. '42. 17' wide x 37' long $9950.00. 1-12" Portable Elec. Hyd. Dredge, new '40, 6 sections, 24' x 70', latest type. Like new. 6,000' of Pipe, 50 Steel Pontans. Cost $250,000. Open for offers. Photo on request. 8" — 12" — 14" — 16" Available. Portable & Standard.

EVEREADY SUPPLY CO.
E. J. McCallum, Pres.
805 Housatonic Ave. Bridgeport, Conn.
Phone—4-9471

FOR SALE

NEW DEFORMED CONCRETE BARS

ASTMA 1539

25 Tons ½" x 36'/40'
30 Tons ⅝" x 36'/40'
also
Beams—Angles—Channels

QUEENSBORO STEEL CORP.
47-29 Van Dam St. Long Island City

C-11 TOURNAPULL SCRAPERS

Three outfits, latest factory improvements. Good as new. $14,500 each. Eastern location. No dealers.

ES-6363, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

CEDARAPIDS PITMASTER PLANT

Consisting of 10-16 Roller Bearing Jaw Crusher, 16-16 Roller Bearing Roll Crusher, 30"x9'5" double deck "CEDARAPIDS" Horizontal Vibrating Screen, Return Wheel System, 20" Plant Conveyor, 18" Under Crusher Conveyor, 24"x22' Folding Delivery Conveyor, 18" Reciprocating Feeder with Hopper and Grizzly, on 4 wheel pneumatic tired truck with all chutes, hoppers, drives and clutch controls. Includes operator's platform. Model 3031C General Motors Diesel Power Unit, motor platform, drive for power unit and rear wheel air brakes.

Purchased new October 1, 1947, excellent used condition, working every day, available May 1. Write or phone for exact location. Price, f.o.b. shipping point in Missouri $15,000.00

G. W. Van Keppel Company
2440 Pennway Kansas City, Missouri
Phone - Grand 1540

FOR SALE

Five (5) Tournapulls, 1944 and later. 21.00 x 24 tires—Tractor and Scraper rubber 75% to 100% new. Subject to prior sale. A real bargain.

Three (3) units @ $6,500.00
Two (2) units @ $6,000.00

H. O. PENN MACHINERY COMPANY, Inc.
140th Street and East River
New York 54, N. Y.
CYpress 2-4800

FOR SALE

Rubber Hose—All Types—New Guaranteed—National Brand
80% off List Price

L. McLEOD
P.O. Box 62 Berkeley, California

FOR SALE

MARION Model 372 Shovel $8,000.00
P&H Model 255A, three years old, combination crane, shovel and backhoe $11,000.00
Steam Hoists, two and three drum—speed gears ..... —

HOWARD W. READ CORP.
N. W. cor. 25th & Wharton Sts., Phila., Pa.

N'west mdl. 6 diesel ¾ cy shovel
N'west mdl. 3 gas 1 cy Backhoe & 50' Crane
P. & H. 255A Diesel Backhoe & Crane
Insley K-12 gas ½ cy Backhoe—Crane
Insley ½ cy Truck Crane
Cat'plr D-7 bulldozer 1T series
Int'l TD18, TD14, TD9, TD6 bull- & angledozers

BENDIX MACHINERY CO., INC.
401 Broadway, New York 13—Tel: Canal 6-5693

FOR SALE

TD6 International Cat

Less than two years old . . . in excellent condition.

$2,250.00

MALVERN GRAVEL COMPANY
Malvern, Arkansas

WILL SACRIFICE brand new Caterpillar W-10

Bottom Dump Wagon, (Minus tires) for use with Caterpillar DW10. Located in Pennsylvania.
PRICE $500.00

Reply to

GEO. W. CROTHERS LIMITED
LEASIDE, Ontario, Canada

FOR SALE

1 1947 TD-9 International Dozer with Bucyrus-Erie Hydraulic Blade. Excellent Condition
1 1946 TD-18 International Dozer with Heil Cable Controlled "Trailbuilder" Angle Blade. Very good condition
1 1949 TD-21 International Dozer with Bucyrus-Erie cable controlled "Trailbuilder" Angle Blade. This machine is brand new, it has never been used.
1 1946 P & H ½ yd. Truck Crane, Model 150, 50' boom. Model 150 Clamshell bucket attachment. Very good Condition
1 1941 P & H Gas Shovel, Model 255A, Crawler Type
1 1948 ½ Ton Ford Pickup, Excellent Condition
1 1948 ½ Ton Ford Pickup, Excellent Condition

SORANNO CONSTRUCTION CO.
Morristown, N. J.

FOR SALE

2—New, 3 c.y. Hercules Aircreter Ready Mix Concrete Bodies. $1,250.00 each.

ROBERT R. ANDERSON CO.
4550 W. Patterson Ave. Chicago 41, Ill.

FOR SALE

ONE (1) 34 E DUAL DRUM KOEHRING PAVER

New, Never Used. Sacrifice price.

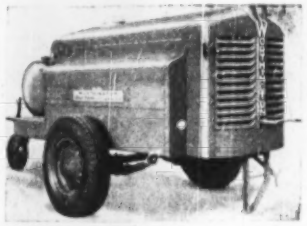
ELWOOD M. JENKS
Box 345 Clarksburg, W. Va.

PORTABLE COMPRESSORS

Sales—Rental
Rental Purchase

- 52 CFM LINDSAY
- 60 CFM WORTHINGTON (Gas) 2 Pneu
- 60 CFM INGERSOLL (Gas) 2 Pneu
- 60 CFM CHICAGO (Gas) Skid—2 Pneu
- 85 CFM INGERSOLL (Gas) 2 Pneu
- 105 CFM WORTHINGTON (Gas & Diesel)
- 105 CFM SULLIVAN (Gas) Skids—2 Pneu
- 105 CFM INGERSOLL (Gas) 2 & 4 Pneu
- 160 CFM WORTHINGTON (Diesel) 4 Pneu
- 210 CFM GARDNER DENVER (Gas) 4 Pneu
- 210 CFM WORTHINGTON Gas & Diesel) 4 Pneu
- 315 CFM LeROI (Gas) 4 Pneu
- 315 CFM INGERSOLL (Diesel) 4 Pneu
- 315 CFM WORTHINGTON (Gas & Diesel) 4 Pneu
- 500 CFM WORTHINGTON (Diesel) 4 Pneu
- 500 CFM INGERSOLL (Oil) Skids—4 Pneu

SEMI-PORTABLES
140 CFM to 380 CFM—Electric or Gas Drive



American Air Compressor Corp.
Dell Ave. & 48th St., North Bergen, N. J.
SINCE 1902

SALE OR RENT

- 1—15 Ton Keystone Model 18 A Truck Crane mounted on 6 x 6 Mack Thermodyne, 10 Pne. Tires 12:00x22. New 1945.
- 1—20 Ton Bay City Truck Crane 1946.
- 1—½ Yd. Insley K12 Gas Crane 1944.
- 1—30 Ton Plymouth 4 wheel Gas Loco. 1943.
- 1—30 Ton Browning 3G Steam Loco. Crane 65' Boom. 1944.
- 1—30 Ton Orton Diesel Loco. Crane 60' Boom. 1941.
- 2—5 Ton Wright 3 motor A.C. floor oper. Single Girder Underhung Elec. Traveling Cranes.
- 1—45' Crane Boom for Link Belt LS 90. New.

B. M. WEISS CO.
Girard Trust Co. Bldg. Phila. 2, Pa.
Rittenhouse 6-2311

FOR SALE

2—10' x 30' STEEL PLATE DIGESTERS, each $4000.00
1—8' H.P. THOMAS 2 STEEL PLATE DIGESTER, $2500.00

J. C. THEILACKER COMPANY
5924 W. Washington Blvd.
MILWAUKEE, WIS.

STRUCTURAL BEAMS

70 Pcs. 18" x 24" lg.—24 Pcs. 30" x 32" lg.—7 Pcs. 36" x 35' lg.—6 Pcs. 36" x 40' lg. and 6 Pcs. 36" x 54' lg. Also used structural timbers for sale—Phone or write

JUTTON-KELLY COMPANY
13240 Alber Avenue Dearborn, Michigan

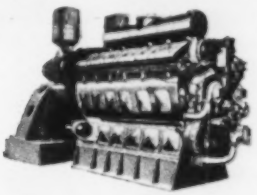
PUMPS AT SACRIFICE

Factory New Barnes Centrifugal Pump Sizes 1½" to 6" and
Barnes Single Diaphragm Pumps
Immediate delivery

HODGE & HAMMOND, INC.
1100 E. 156th Street, New York 59, N. Y.

DIESEL POWER

FOR
IMMEDIATE SHIPMENT
UNIT CAPACITIES—10 TO 1875 KVA
A.C.—50 AND 60 CYCLES
VARIOUS VOLTAGE



A PARTIAL LISTING OF OUR INVENTORY

KVA	Make	Model	HP	RPM	KVA	Make	Model	HP	RPM
1875	Fairbanks Morse	38D16	2600	300	375	Enterprise	16G6	450	450
1450	Fairbanks Morse	36D9½	2000	720	340	superior	KSX	386	514
1250	General Motors	16-278A	1600	720	312	General Motors	6-268A	430	1200
937.5	General Motors	12-567	1200	720	312	Clark	M1D4	375	577
625	Allis	6-12½x13H	750	600	125	General Motors	3-268A	160	1200
625	Baldwin	V-646	1000	450	100	General Motors	6014K	90	1200
400	Buckeye	8G	480	600	62.5	Int'l Harvester	UD-18	76	1200

D.C. UNITS ALSO AVAILABLE

A. G. SCHOONMAKER COMPANY, INC.
DIESEL DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

DIESEL GENERATOR PLANTS

COMPLETE WITH SWITCHBOARDS

1000 KW TO 100 KW
STATIONARY AND PORTABLE

AT GREATLY REDUCED PRICES
NEW UNIT GUARANTEE

HERCULES ELECTRIC MACHINERY and EQUIPMENT CO.
Telephone NEvada 6-2808 1412 So. Alameda Street
Cable Address HEMCOY Compton 1, Calif.

TRENCHER

Model 160 BUCKEYE,
Set to dig 12'6"x34"
Price $5,000

CRANE

Insley Half Yard Combination Crane, Back-hoe - Dragline
Price $3,000

Both machines in really excellent condition.

GUILLE MACHINERY COMPANY
1006 44TH STREET
NORFOLK 8, VIRGINIA

CARS: 20—Western and Koppel, 20 cu. yd., all steel, air dump, set steel trucks, rebuilt.
TRUCK CRANE: Bay City, 20 ton, 80 ft. boom, on Crane mobile 10 wheel truck.
LIMA SHOVEL BOOM: 2 yd. Dipper and stick for model 80C. Condition like new.
TRUCKS: 10 Euclid, bottom dump, also, end dump with rock bodies. Cummins 150 H.P. and 175 H.P. diesel motors, with booster steering.
MINE HOISTS:
1—Double drum, 120" x 90", 1-3/8" rope, 1000 H.P.
1—6' dia., 6½" face, 500 F.P.M., 1000 H.P., 1-1/2" rope, 2200 volt, 450 R.P.M.
1—All steel drum 6 ft. dia., 1" rope, 62,000 lbs. single line pull, 500 F.P.M., 600 H.P., 2200 volt, A.C.
1—250 H.P. single drum, 7'3" x 7', 10,000 lbs. single line pull, 250 F.P.M.
1—150 H.P. double drum, 38" dia., 12" face, 440 volt, A.C.
All the above Hoists complete with control equipment.
JAW CRUSHERS: Farrel 15 ft. size 24 x 36 manganese fitted, with or without motor and drive. Pioneer 24 x 36, portable, with or without diesel power. Also, all sizes 3 x 6 to 48 x 60.
REDUCTION CRUSHERS: Symons 2 ft., 3 ft., 4 ft. and 5 ft. Telsmith 2 ft. Gyratory. Good Roads 1010. Allis Chalmers B102.

A. J. O'NEILL
Lansdowne, Pa.
Phila. Phones: Madison 3-8300—3-8301

DEPENDABLE USED MACHINES

Special.—Byers Model 60 dragline, ¾ yd., built 1942, rebuilt in our shop.

Lima 250 dragline	A-C Model M with Hough loader	H-K Roustabout crane
Bay City 25 backhoe	Pioneer 305W gravel washing plant	Ruger floor crane
Universal truck crane	Hughes-Keenan Roustabout crane	Waukesha WK motor
Robins belt feeder	Erie 6" top discharge sand pump	Chrysler power unit
Clam buckets, all sizes	Pioneer duplex port. gravel plant	Myers air tools, cheap

For rent.—15 current model Bay City cranes, shovels and backhoes.

10002 S. Ridgeland Ave. TRACTOR & EQUIPMENT CO. Oak Lawn, Ill.

SURVEYING INSTRUMENTS

USED • REBUILT • SALE • RENT • REPAIRING

U. S. AIR CORPS TYPE
NEW, SAFER, SHOCK RESISTANT

SUN GLASSES

Reduce Eyestrain From Glare & Harmful Rays

Cool, sleek, protective, optical. Reg. $10.00 Quality polished lens of nonglass with gold plated frame, padded sweat bar and nose pad. Made to meet U. S. Govt. specifications. Complete with case.

$2.25 For $4.00

P. Post Paid

MAKE QUICK ACCURATE SIGHTS
•
NEW IMPROVED HAND

SIGHTING LEVEL

COMP. WITH U. S. ARMY PLASTIC POUCH

Precision built, ready to use. Needed when taking distance, rise, inclination, gradient and determining dependable contacts.

SPECIAL LOW PRICE $1.85

SHIP. CHG. 15c EXTRA EACH

BE SAFE—BE SURE ON LAND OR SEA
Brand New U. S. Navy

POCKET COMPASS

DEPENDABLE ACCURATE

Has Many Features Not Found in Compasses Many Times This Price.

A fine precision compass designed for hand use. Has white light dial, transparent plastic case and luminous dial marked in 32 points or degrees. Guaranteed.

Regular $10.00 Value

$3.00

P. POST PAID

J. JACOB SHANNON & CO.
214 N. 22nd St. Phila. 3, Pa.
The Oldest Equipment House in Phila.

SURVEYING INSTRUMENTS REPAIRED

Send your transits and levels for complete overhauling and reconditioning by experienced factory-trained mechanics. Examination and estimates without cost. Your instrument should be sent express prepaid for a prompt repair estimate.

J. H. WEIL & CO.
1325 CHERRY ST. PHILADELPHIA, PA.
GURLEY REPRESENTATIVES

FROM STOCK

Brand New & Rebuilt

TRANSITS & LEVELS

Fully equipped modern shop—all makes and models repaired—all work guaranteed—instruments rented

Midwest Representative: W. & L. E. Gurley

NATIONAL BLUE PRINT CO.
Established 1914.
210 S. Canal St. Chicago (6), Ill.

TRANSITS - LEVELS

All Makes Repaired - Rebuilt - Parts - Sold - Rented - New or Used

CIRCULAR GRADUATING at New Higher Accuracies is Now Available — quickly, Economically — with our new circular graduating engine. Ask for Prices.

ALL WORK GUARANTEED
BRUNSON INSTRUMENT CO., INC.
1405 Walnut St., Kansas City 6, Mo.

LASTING BRUNSON ACCURACY

TRANSITS AND LEVELS

New or Rebuilt
Sale or Rent

Headquarters for REPAIRS — any make. Factory Service. We will also buy your old instruments or take them in trade. A complete line of Engineering Instruments and Equipment for field or office. Write for catalog N.R. 04

WARREN-KNIGHT CO.
Manufacturers of Surveying Precision and Drafting
136 No. 12th St., Philadelphia 7, Penna.

GURLEY

SURVEYING INSTRUMENTS
NEW • REBUILT

Replace your platinum wire or spider with cobweb with the new Gurley glass reticle. Metallic diagonals deposited on factory glass reticles are sharply defined, equally visible against either very bright or dark backgrounds.

Patterns to suit every surveying need.

W. & L. E. GURLEY
Fulton St. Station Plaza, Troy, N. Y.

RE-BUILT REPAIR RENT REAL EXPERTS
BUFF
ALL MAKES

69 Day St., New York

SPECIALIZED REBUILDING

of surveying and engineering instruments
All makes and models expertly repaired in modern shop. All work guaranteed.
USED REBUILT INSTRUMENTS
for sale or rent
ROY D. HICKERSON
46 JOHNSON AVE. INDIANAPOLIS 19, IND.

For Rent

SPEEDCRANES

LATE MODELS

Manitowoc Diesel Powered Speedcranes for rent. 25, 40 and 50 ton capacities with booms 100' or more, 20' and 30' jibs. Special price on long rentals.

FORSYTHE EQUIPMENT CO., INC.
37-11 Vernon Blvd. Long Island City, New York
Tel. STillwell 4-1030

FOR RENT

Modern Caterpillar Mounted
CRANE, CLAMSHELL & DRAGLINES

40 to 60 ton Capacity

CLEMENS CONSTRUCTION COMPANY
P. O. Box 266 West New York, N. J.
PEnna. 6-0655

LORAIN MODEL 80
1¾ cy Shovel & 80' Dragline/Crane

D13000 Caterpillar engine
rebuilt — A1 condition

For Sale or Rent (with option to buy)

BENDIX MACHINERY CO., INC.
401 Broadway, N. Y. 13—Tel: Canal 6-5693

Four Cat D. W. 10 with Laplante Choate Scrapers manufactured in 1945 in good running condition and priced right.

AIR COMPRESSOR RENTAL CO.
19615 NOTTINGHAM RD. CLEVELAND
KENMORE 1-8000

FOR SALE *CHEAP*

2—New D-13,000 Caterpillar Diesel Engines, 450 H.P. Complete with Clutches and Pulley-drives.
1—Schramm Diesel 315 cu. ft. 2 stage comp. 1947.
1—LeRoi Diesel 315 cu. ft. 2 stage compressor, pneumatic tires, new 1946.
1—50 ton Porter Loco 0-6-0 Std. gauge.

HARRY C. LEWIS
899 East Grand Street Elizabeth, N. J.

FOR SALE

1—G. & H. 6000 gal. per minute pump, 16" discharge, 12' lift, less than year old, powered by Gen. Motors 171 hp/1 diesel power unit. $2200.00
1—Caterpillar Model 22 Tractor $600.00
1—Koehring 304, Ent'l diesel engine, 55 ft. boom, clam & drag, long & wide tracks, 1 yd. std $10,000.00
1—Hendrix 1 cu. yd. drag bucket $250.00

LATHAM CONSTRUCTION CO.
1559 Tremont Rd. Columbus, Ohio
Phone—Kingswood 7829

FOR SALE

MOTO-CRANE

Lorain TMC, 4x4 Moto-Crane, complete in Tooth, Railroads and Backhoe $12,500.00

MR. JOHN HUTTON
JOHN FABICK TRACTOR CO.
MARION, ILLINOIS PHONE: L.D.—15

FOR SALE

1—Manotx Little Trammer, 20" to 24" gage
2—New Batteries with boxes
1—Hertner Automatic Battery Charger
Above factory overhauled and guaranteed. Also
1—Baldwin-Westinghouse 8 ton, 36" gage Storage battery locomotive

OTTO P. SEEFELD
5101 W. State Street Milwaukee, Wis.
Tel. Blue Mound 8-6710

FOR SALE

Barber-Greene Pug Mill

Model 842, powered with Buda gasoline engine. Model HP 326. In excellent condition. Price—$5,000.00

F.O.B. Brownsville, Texas

FOR SALE—NEW PROPELLING and CROWD

CHAINS

For All Makes of Shovels And Cranes

From ½" to 5" Pitch

SUBSTANTIAL DISCOUNTS

Thousands of other Construction Items

BABCOCK EQUIPMENT CO., INC.
163 Highland Ave., Needham Hgts 94, Mass.
Tel. Needham 3-3040—3-2929

FOR SALE
BOILERS

[illegible] Vertical Fire Tube Boilers. Code [illegible] to 125 [illegible]. ASME and Pennsylvania State Boiler Code [illegible]. Each Boiler equipped with Gilbert 25 extra [illegible] and [illegible] gas burners.

KEYSTONE DRILLER COMPANY
BEAVER FALLS, PENNA.

CLEVELAND TRENCHER

Model 110, 16" Tracks, UD 9 Diesel Motor, 18 months old. T-10 Trailer, 8.8.25 x 20 tires, Brakes.

HUBER 10 Ton, 3 Wheel ROLLER.

THE C. P. GILGENBACH CO.
R. D. No. 3 Elyria, Ohio

PIPE

WROUGHT Steel Pipe

FITTINGS
VALVES
BOILER
TUBES

ALBERT & DAVIDSON PIPE CORPORATION
2nd AVENUE 50th-51st STREET
BROOKLYN 32, N. Y.
Windsor 9-6300

PIPE
VALVES and FITTINGS
All Sizes in Stock
NEW—USED
GREENPOINT IRON & PIPE CO., INC.
Bogart and Stagg Streets Brooklyn, N.Y.

PILING

We do a Nation-Wide business in

STEEL SHEET PILING

New & Used Rented & Sold

100 pcs. 60 ft. Beth. AP3-Buffalo
242 pcs. 50&40 ft. Carn. M116-Chicago
116 pcs. 40&30 ft. Carn. M116-Kentucky
91 pcs. 55-29 ft. Beth. SP4-South Car.
300 pcs. 30-25 ft. Carn. M412-Minn.

Other lengths & sections at various locations

All sizes Vulcan & McKiernan Pile Hammers & Extractors for Rent and Sale—Shop Rebuilt
Regardless of location of your job, wire or write

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., St. Louis, Mo.
"WE BUY STEEL PILING FOR CASH"

SHEET PILING

Location—Birmingham, Ala.

163 Pcs. SP6a 14 to 17 feet
60 Pcs. SP6A 11 to 14 feet
346 Pcs. SP7A 14 to 17 feet
60 Pcs. SP7A 11 to 14 feet
21 SP6A Corners
62 SP7A Corners

FRAZIER-DAVIS CONSTRUCTION COMPANY
1319 Macklind Ave. St. Louis, Mo.

For Sale or Rent

STEEL SHEET PILING

Bethlehem SP-4 section
First class redrivable

102 Pcs 42 to 39 ft
249 Pcs 37 to 34 ft
932 Pcs 33 to 30 ft
575 Pcs 29 to 26 ft
586 Pcs 24 to 20 ft

Also Tee Piles

Immediate shipment from southeast

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St. St. Louis, Mo.

INTERLOCKING STEEL SHEET **PILING**

All lengths & strengths RENT or BUY

LEBOUTILLIER CO.
Pittsburgh 30, New York 7, Chicago 4, Houston 2

FOR SALE OR RENT

Ransome 34 E Duel Drum Paver
Buda diesel engine, 36'9" boom,
800 gal. auxiliary water tank

HODGE & HAMMOND, INC.
1162 Grinnell Place
New York, 59, N. Y., Dayton 9-5300

RUBBER CONVEYOR BELTING

At Lower Prices

Top Quality—Immediate Delivery

12" widths to 36" (All plies)

TRANSMISSION BELTING
AIR HOSE (All Sizes)
SUCTION & DISCHARGE HOSE
WATER HOSE
V BELTS

Also Mill Remnants

Write or wire collect for prices & samples

E. D. HEEHS & SON
1287 Hollywood Ave. Memphis, Tenn.

RAILS-TIES
TRACK ACCESSORIES

EVERYTHING FOR THE TRACK FROM
SWITCH TO BUMPER

SPECIAL OFFERING
We Offer
50,000 Good Used Creosoted
Cross Ties
Immediate shipment

MORRISON RAILWAY SUPPLY CORP.
RAND BLDG. BUFFALO 3, N.Y.
EMPIRE BLDG. BIRMINGHAM 3, ALA.

NEW—RAILS—Relayers

All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.

M. K. FRANK
480 Lexington Ave. Park Bldg.
New York N. Y. Pittsburgh, Pa.
Reno, Nevada Carnegie, Pa.

PROFESSIONAL SERVICES

Industrial Drilling and Boring Corp.

FOUNDATION BORINGS
GEOLOGICAL SURVEYS
[illegible]

Consoer, Townsend & Associates

[illegible]

Metcalf & Eddy

ENGINEERS
[illegible]

Jones, Henry & Schoonmaker

[illegible]

HOW ABOUT YOU?

[illegible]

For further information write
ENGINEERING NEWS-RECORD, 330 W. 42nd St., N. Y. 18, N. Y.

Gustave M. Goldsmith

[illegible]

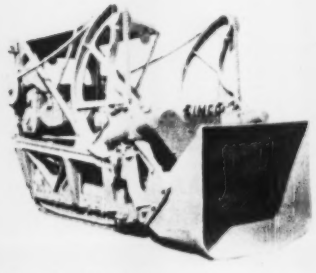
Albright & Friel, Inc.

[illegible]

NEW PRODUCTS

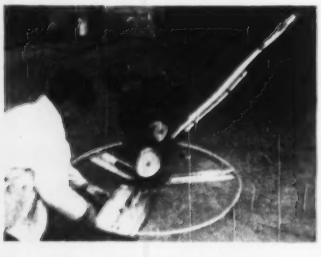
Transit Mixer Features Light Weight, Fast Operation

Lighter weight, lower price, shorter length, faster operation, and reduced cost of upkeep are advantages claimed for the new line of Jaeger Payloader truck mixers and agitators. Faster end-loading of dry materials is obtained by new hopper design and ability to revolve drum at high speed while charging. Pre-mixed or shrink-mixed materials can be charged in one drop through a top door in the drum. One turn of a hand wheel fully retracts loading hopper to permit unimpeded discharge. Positive, fast water distribution is provided by a Jaeger self-priming pump which delivers accurately metered water at 60 psi pressure at a rate of 100 gpm. Drums are equipped with continuous spiral blades with additional throw-back re-mixing blades. Hand drive is available if wanted. Payloader models are available in 2, 3, 4½, and 5½ yd sizes as mixers and 3, 4½, 6¾, and 7½ yd sizes as agitators.—The Jaeger Machine Co., Columbus 16, Ohio.



Overhead Loader

The Model 104 Eimco Rocker Shovel can be used for loading all types of bulk materials. It operates on the Eimco rocker-arm principle and throws the load overhead to discharge. Rated at 4 to 6 yd per min, the 104 has a 10- to 15-sec operating cycle. Power is provided by a 48-hp diesel engine or a 50-hp electric motor. Track gage is 44 in., track shoe width, 15 in. The 104 has 5 forward speeds, 1 reverse speed, an automatic power cut-off at discharge to return bucket, and has a total weight of 22,000 lb. Attachments available include a bulldozer blade, lift fork, and hoist drum.—The Eimco Corp., 634 S. 4th West St., Salt Lake City 8, Utah.



Float Finishing Machine

Mechanical concrete troweling machine produces a dense, wear-resistant slab, free from ripples and depressions. Flooring is performed with Snap-On flat float trowels, which can be installed or removed in a few seconds. For finishing, floats are removed and tool-steel finish trowels are employed. With the machine in motion on the slab, a turn of the control knob on the handle changes trowel pitch as desired. Available with gasoline-engine or electric motor drive.—Whiteman Mfg. Co., 5249 Casitas Ave., Los Angeles 26, Calif.

Combination Storm, Screen Unit

Triple Slide storm window has two glass panes and a screen which move up and down independently of one another, each along an individual channel. This permits all possible variations in their arrangement without removing any one of the movable parts. The Triple Slide unit is designed to recess into the window frame when installed. Each of the sash inserts may be readily removed for washing from the inside. An aluminum sealer strip closes space between storm window and primary window frame.—Eagle-Picher Co., American Bldg., Cincinnati 1, Ohio.

Ribbed-Steel Cross Bridging

Made of ⅛-in. steel, ribbed for maximum strength, the Cleveland cross bridging is available in 20- and 17-in. lengths to fit any normal beam construction. Supplied straight, the flat ends are easily bent in nailing operations to conform to beam arrangement, even if the beams are slightly off center. Flattened ends permit subfloor to be installed directly over bridging.—Cleveland Steel Specialty Co., Inc., 3775 E. 91st St., Cleveland 5, Ohio.

Steel-Hardening Compound

Powdered chromium-carbon material produces a carbonizing, nitriding, and chromizing action on tool steel resulting in a tough, uniform case. Hard-N-Deep is used with standard shop equipment—part to be hardened is heated to cherry red, dipped in the compound, brought back to temperature, and quenched. One treatment produces a case of about ⅛ in. Deeper penetration can be obtained by additional applications.—The Miracaloy Corp., 50 Broadway, New York 4, N. Y.

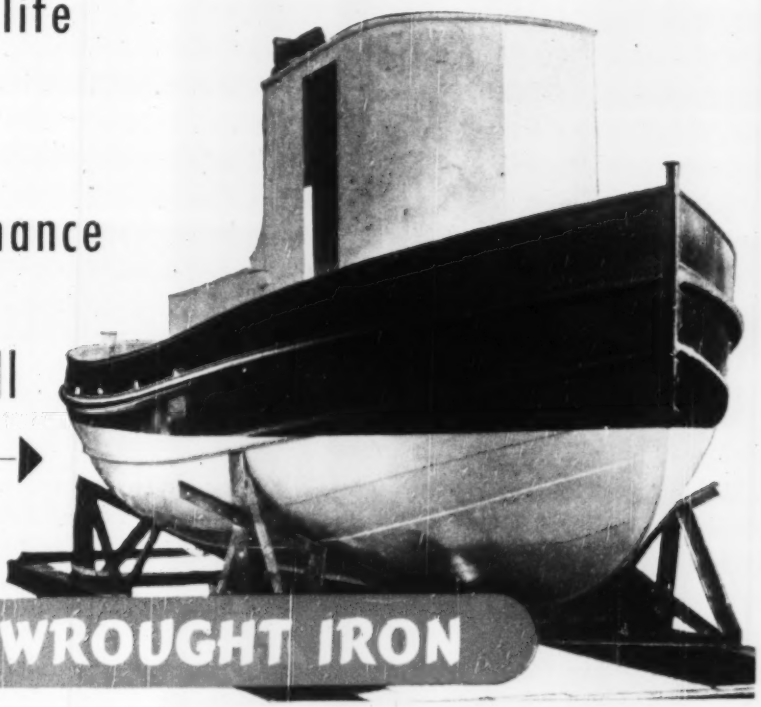
High-Speed Earthmovers

Two additions to its line of earth-moving equipment have been announced by LeTourneau-Westinghouse. The LP-200 Motor Scraper is a self-propelled rubber-tired high-speed earth

(Continued on page 109)

EXPERIENCE PREDICTS

longer life and lower maintenance for this hull



it's BYERS WROUGHT IRON

This latest addition to the tug fleet of the Norfolk Dredging Company, shown here in the yard of the American Electric Welding Company, Inc., is fortified against corrosion with a hull of Byers Wrought Iron. Several previous tugs in the fleet utilized the same time-proven method to avoid excessive maintenance and premature replacements . . . including the "Smith", which has been in continuous service for 53 years!

The marine field provides plenty of convincing evidence of the durability of wrought iron in the many old vessels that are working every day with their original wrought iron hulls still sound and serviceable. One historic example is a tug built in 1884, in active service, and with its plates still satisfactory. The comparative life of wrought iron is demonstrated in another tug, built in 1882 and operated for 40 years with its original wrought iron hull. The plates were then replaced with low-first-cost material. Replacements were required in only nine years. These are just two of many impressive examples that could be reported, if space permitted.

The long life of wrought iron does not depend on surface protection, but on the material itself. Tiny fibers of silicate slag, threaded through the body of high-purity iron, halt and disperse corrosive attack and so discourage pitting and penetration. The fibers also anchor the initial protective scale, which shields the underlying metal. No other material duplicates this composition and structure.

If you are concerned with the design, operation or maintenance of work boats, the savings possibilities of wrought iron hulls should be of great interest and significance to you. We will be glad to send you a copy of our 64-page bulletin, WROUGHT IRON FOR MARINE APPLICATIONS, which will provide you with instances of wrought iron's past performance, and examples of its varied and widespread current uses. Ask for a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, San Francisco. Export Division: New York, N. Y.

BYERS

GENUINE WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

JUDGE IT BY THE JOBS IT HANDLES

Tiger Brand Wire Rope

Swinging the big dipper. Tiger Brand Wire Rope is used on the biggest power shovels some of which scoop up 40 cubic yards at one bite.

● There's one sure way of judging a good wire rope . . . do users continue to specify it year after year for their biggest, toughest jobs? For TIGER BRAND, the answer shows up in sales records. *More* TIGER BRAND *Wire Rope is purchased annually than any other make.*

Outstanding applications, like those shown here, prove the outstanding performance of TIGER BRAND Wire Rope . . . and where customers keep accurate records of service life, TIGER BRAND shows its highest percentage of repeat orders. For complete information send for our catalog, "U·S·S American TIGER BRAND Wire Rope."

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Pouring molten steel. Tiger Brand is designed to take the intense heat, corrosive fumes and abrasive dirt and still give long service.

Lifting the loads of industry. Wherever big jobs are being done, Tiger Brand is there with the strength and stamina to lift the heaviest loads.

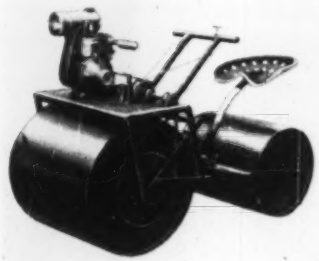
USS

AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

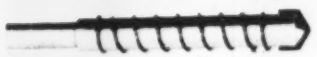
UNITED STATES STEEL

mover with a 9 to 12-yd capacity. Powered by a Buda 145-hp diesel engine, it has a top speed of 23.44 mph with standard transmission. (An optional transmission provides a top speed of 27.4.) Steering and scraper controls are hydraulic. The TW-560 Motor Wagon has a 14-cu struck or 19-cu heaped capacity. It is powered by a Buda 225-hp diesel and has a top speed of 21.2 mph. Doors are hydraulically controlled. Tractor of the wagon is identical to that of the TS-560.—LaPlant Choate Mfg. Co., Inc., Cedar Rapids, Iowa.



Light-Duty Roller

Double-purpose roller can be used with a seat, or converted to a walk-behind type by removal of the rear section. As a tandem roller, it has an empty weight of 325 lb; a full weight of 560 lb. The MotoRoller will turn in a 3-ft radius. Removal of the rear section is accomplished by withdrawal of a single draw pin. Main roller has a 24-in. dia. a 24-in. width. MotoRoller is powered by a 1½-hp Briggs and Stratton gasoline engine.—Gabb Mfg. Co., 16 Orchard St., East Hartford 8, Conn.



Spiral-Fluted Masonry Drill

Applying high-tensile wire to masonry drills in the form of a low spiral helix results in faster drilling and automatic hole cleaning. Dust cut loose by Five Spiral drills is carried to the top of the hole and deposited in a mound around the outside diameter of the hole. The Carbolov drills fit any rotary drill, drill press, or hand brace, and are available in 10 diameter sizes ranging from ¼ to 1 in.—Carboloy Co., Inc., Box 237, Roosevelt Park Station, Detroit 32, Mich.

Pump Protecting Unit

Control prevents damage to pumps caused by running without discharg-

(Continued on next page)

ALBERT

"RINGS THE BELL"

SPEED-LAY PIPE SYSTEM

The complete packaged PIPE SYSTEM for fast-laying, temporary and semi-permanent lines for water, compressed air and other services.

WRITE FOR FREE BOOKLET

PILING—Sheet Piling—Lightweight • Tubular—All sizes

PIPE PILES—Lapweld • Seamless • Electric Weld • Spiral Weld

PILE SHELLS—Spiral Welded • Hel-Cor Riveted

CAISSONS

PILE FITTINGS—All types and sizes for steel and wood • Cobi Pile Tips • Cast Steel and Iron Points • Plates and Shoes • Cast Steel and Malleable Iron Sleeves

CULVERTS—Corrugated • Spiral or Riveted Steel

IMMEDIATE DELIVERY

VALVES AND FITTINGS

Tube Turns—Dresser—Victaulic
Cast Iron or Steel
Forged Steel
Special Alloys
Water Main

PIPE

Wrought Iron
Steel
Structural
Cast Iron
Copper Steel
Seamless
Electric Weld
Spiral, Lap & Butt Weld
Shore Dredge
Speed-Lay

SPECIALISTS IN PRE-FABRICATED PIPING

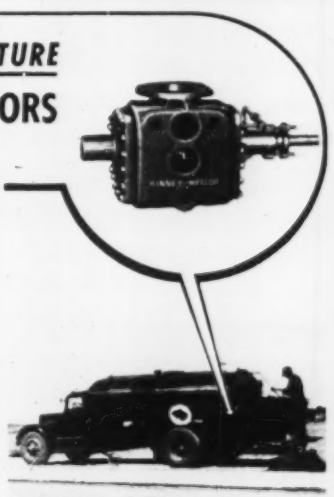
Complete facilities for Bending, Coiling, Beveling, Swedging, Flanging, Grooving, Welding, Cutting to Sketch, and Threading to meet your most rigid requirements. Bituminastic or Cement Lining—Testing—All meeting Standard Specifications.

ALBERT
PIPE SUPPLY CO., INC.
Berry at North 13th Sts., Brooklyn 11, N. Y.
Phone EVergreen 7-8100

This Pump is a ***BIG FEATURE*** *of* **KINNEY DISTRIBUTORS**

The Kinney SD Rotating Plunger Pump brings these 6 big advantages to all Kinney Bituminous Distributors—

1. ACCURACY: The SD pump is accurate as a meter.
2. SIMPLICITY: No valves, springs or gaskets—all passages clear and unrestricted.
3. JACKETED CONSTRUCTION: Pump heated by engine exhaust for quick, easy starting.
4. LARGE CAPACITY: Up to 405 G.P.M. driven by oversize 39 H.P. Hercules engine.
5. DEPENDABILITY: Built for rugged service and long life with minimum maintenance.
6. ACCESSIBILITY: All parts readily accessible for adjustment or repair.



Throughout the world, highway departments and private contractors for forty years have relied on Kinney Distributors for applying oils, tars, asphalts and emulsions. Write for Bulletin A-49; it tells the whole story of Kinney Distributors.

KINNEY MANUFACTURING CO.
3527 Washington Street, Boston 30, Mass.
New York • Chicago • Cleveland
Philadelphia • Los Angeles

We also manufacture liquid pumps and vacuum pumps.

Concrete

VIBRATORS

Gasoline Engine or

CONCRETE GRINDERS

Other Products

Electric Motor Driven

FRONT END SHOVELS

for Industrial Tractors

HEATING KETTLES

for Asphalt and Tar

AGGREGATE DRYERS

for Stone and Sand

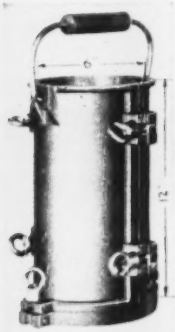
ASPHALT PLANTS

Portable—Stationary

Write for Circular

White Mfg. Co.

ELKHART INDIANA



STOCK SIZES
Model A 6x12"
Model B 8x16"

This CONCRETE TEST CYLINDER MOLD

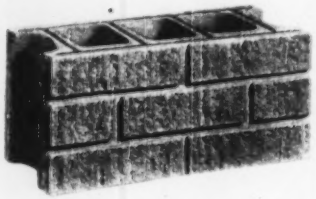
is Accurate—Saves Time

Accurately machined to produce concrete samples of exact measurement. Sturdily made of refined malleable iron. Strong bronze wing nuts and swing bolts. Inside dimensions shown above. Portable. Your order will be promptly handled. If you want additional information write

MOLINE IRON WORKS
MOLINE, ILLINOIS, U. S. A.

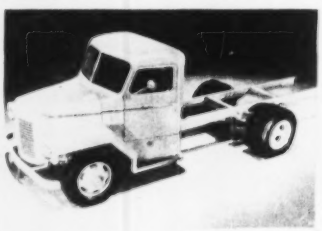
SEVENTY YEARS OF SERVICE

ing water. The Protectrol automatically stops pump, and keeps it from starting until manually reset, in event of mechanical failure, lowering of the water table, or any other cause for water not being discharged when pump is placed in operation. Emergency condition causes unit to energize audible alarm circuit and warning light.—Automatic Control Co., 1005 University Ave., St. Paul 4, Minn.



Brick-Faced Concrete Block

Concrete blocks are now available with a colored-cement brick facing applied in such a manner that the facing is an integral part of the block. Bric-Blocks are available in any color or combination of colors, with a plain or rough brick facing, in all standard sizes. The Bric-Blocks are said to combine the beauty and durability of brick with the economy of block construction.—National Bric-Block, Inc., Lindeke Bldg., St. Paul, Minn.



Light, 4-Wheel-Drive Truck

Light-duty four-wheel-drive truck has a gross vehicle weight of 14,500 lb. Previously, 17,000-lb gross-vehicle weight has marked the beginning of the FWD line, which extends up to 58,000 lb. The LD has been designed for light-duty use requiring the added traction of 4-wheel-drive design, and where conversions have not proved satisfactory.—The Four Wheel Drive Auto Co., Clintonville, Wis.

Water-Meter for Concrete

Auto-Stop meter automatically controls quantity of water used for concrete batches. It consists of a Model 432 register mounted on a Neptune liquid meter coupled with a quick-closing valve. Tripping mechanism is activated by buttons on the register. After delivery, the register is cleared by turning the reset handle. A totalizer keeps cumulative totals. Flow can be stopped instantly at any time by pressing the emergency stop button. Available in capacities from 50 to 100 gpm.—Neptune Meter Co., 50 W. 50th St., New York 20, N. Y.

New Product Briefs

Hydro-Power injector saturates a controlled amount of air with water vapor and injects this mixture into the manifold after carburetion resulting in lowered fuel costs, increased performance, reduced pre-ignition, reduced carbon deposits, and longer engine life. Maker: Hydro-Power Mfg. Co., Denver, Colo.

Fractional-hp motor, Model 1100, is brush-type unit with a 1/20-hp intermittent and 1/25-hp continuous-duty rating. Maker: Electric Motor Corp., Racine, Wis.

Corrosion-resistant globe valve, in 1 and 2-in. sizes, is designed for shut-off and throttling service with corrosive fluids free from abrasive solids. Except for Teflon packing, all valve parts in contact with fluid are Karbate impervious graphite. Maker: National Carbon Division, Union Carbide & Carbon Corp., New York 17, N. Y.

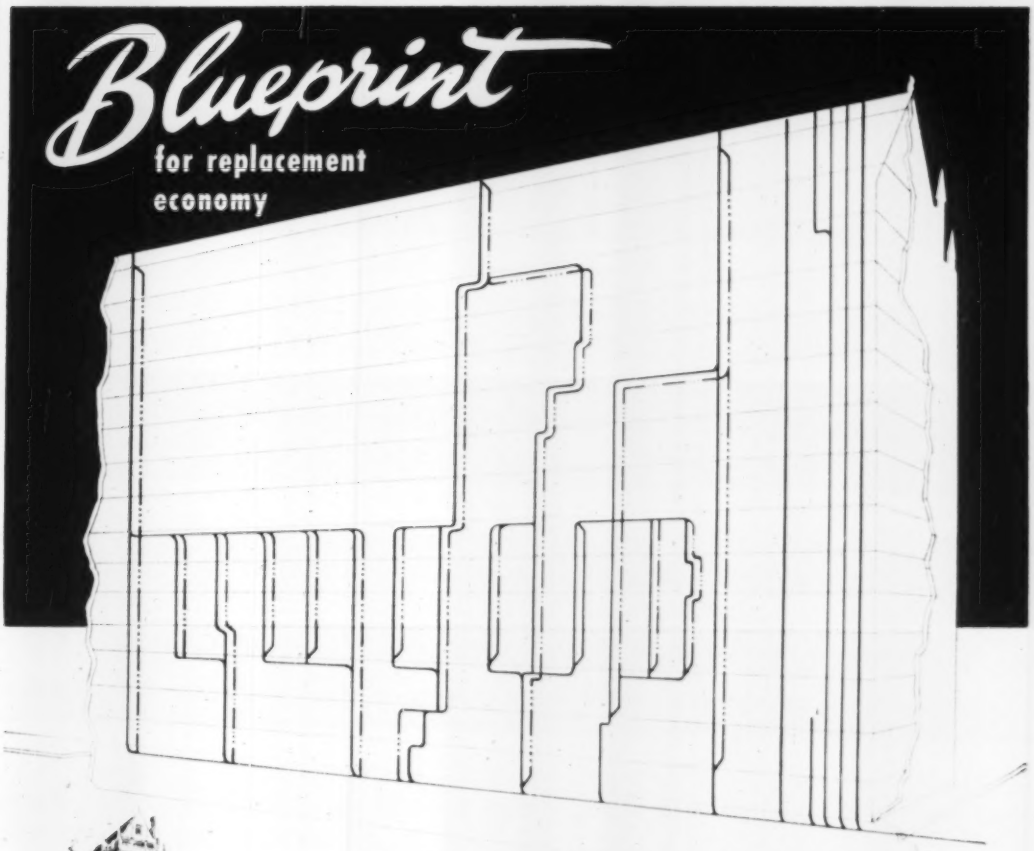
Motorless pressure sprayer for paints, disinfectants, and other liquids has a 2½-qt steel container with a lid which holds a hand pump for building up pressure in the container. Lid of the NoMotor sprayer is tested for pressures to 150 lb. Maker: NoMotor Corp., Cincinnati, Ohio.

Portable traffic signal, manufactured by Peters Metal Products Co., Hawthorne, Calif., is non-electric and completely automatic and portable. Operating on a 24-hr spring-wound motor, the device employs a revolving drum lettered "Stop", "go", and "caution". It has an adjustable stand with a maximum height of 7½ ft, a minimum of 4 ft.

Power plane for woodworkers, Model 101, has maximum cutting width of 1⅛ in.; operates at 20,000 rpm; weighs 8 lb; and has an adjustable apron which permits bevel cuts from 0 to 25 deg. Motor is interchangeable with Porter-Cable's Guild Router.

Ten-inch quick-change gear lathe is in production in four bed lengths. A complete line of tools and attachments is available. Maker: South Bend Lathe Works, South Bend 22, Ind.

Blueprint for replacement economy



Dark lines of this schematic drawing, developed from authentic plumbing riser diagram, indicate where Clow "IPS"* (threaded) Cast Iron Pipe was used on complete replacement job of downspout, waste, vent and soil pipes in the University Club, Chicago, to assure a century or more of service.

Ordinary piping in a plumbing system subject to alternating "wet and dry" conditions, almost immediately following installation starts the battle against nature's destructive force—corrosion. This was illustrated in the above case, where some of the original pipe had entirely disintegrated, due to rust. During the last four years, M. J. Corboy & Co., Plumbing Contractors, replaced over a mile of vent-stacks, waste lines, downspouts and soil pipe with Clow "IPS" (threaded) Cast Iron Pipe . . . thus assuring a century or more of trouble-free service. An interesting point to note is that they were able to do this tremendous overall replacement job without disturbing the building's occupants.

Clow "IPS" Cast Iron Pipe is available with plain or threaded ends in 3, 4, 5, 6, 8 and 10" sizes in 18' random lengths. Also furnished with integral caulking bell on one end (other end plain) in 18' random lengths and 4, 6 and 8" sizes.

*"IPS" is iron pipe size O.D.

CLOW "IPS" CAST IRON PIPE CAN BE

on the job, with ordinary tools of the piping trade.

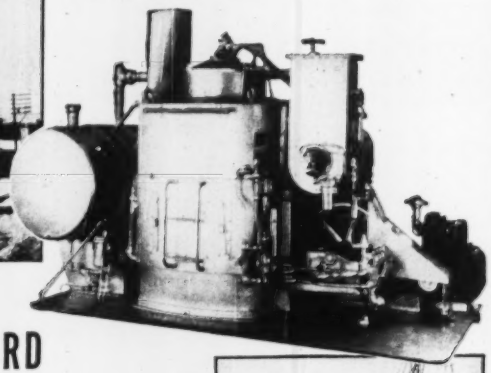
●

and their National Cast Iron Pipe Division, Birmingham, Alabama; subsidiaries Eddy Valve Co., Waterford, New York; Iowa Valve Co., Oskaloosa, Iowa.

JAMES B. CLOW & SONS

201-299 North Talman Avenue • Chicago 80, Illinois

Heating Aggregate and Water for concrete mixing is a prime use for the "Kwik-Steam" Generators. Uninterrupted winter weather operation is assured with this fast heating unit. In less than 60 minutes hot water and aggregate are available to satisfy peak load operation.

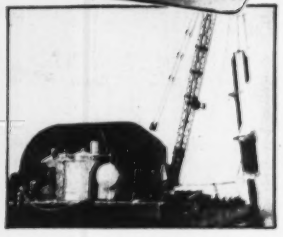


LITTLEFORD

"Kwik-Steam"

VAPOR GENERATORS

FOR PILE DRIVING
AGGREGATE HEATING
ASPHALT PLANTS



Pile Driving Contractors have found the "Kwik-Steam" Generators the last word in efficient and economic. "Kwik-Steam" Generators cuts labor cost and speeds up operations. From a cold start, the hammer can be working in a few minutes. Steam is only produced when it is needed. "Kwik-Steam" Generators can be furnished with a steam chest if desired.

These Kwik-Steam Vapor Generators are the most modern steam producing units ever offered to the construction industry. **From a cold start the Littleford "Kwik Steam" Generators will produce steam in two minutes time.** Designed for low cost operation and fast heating, these units will cure Ready Mixed Concrete Plants, Asphalt Plants, Pile Driving Contractors as much as 50% on labor and fuel. Automatically controlled, the "Kwik-Steam" Generators will operate only when steam is needed, the Burner cycles off when steam is not needed. Once the "Kwik-Steam" Generators are started, automatic controls take over and keep a predetermined pressure at all times. Safety in operation is achieved by foolproof controls. Since the "Kwik-Steam" Generators burn low cost fuel oil no hand fuelle are required as in the case of hand fired boilers. Other uses for the "Kwik Steam" Generators are Steaming Aggregate Cars, Water Heating, Operating Steam Hoists, Cleaning Equipment, Heating Asphalt Tank Cars, come side Asphalt Plants and Curing Concrete Blocks. "Kwik Steam" Generators are made in sizes from 500 lbs. to 4000 lbs. of steam per hour.

LB LITTLEFORD

LITTLEFORD BROS., INC.
415 E. Pearl St., Cincinnati 2, Ohio

BOSTON,
Dept. F
82 W. Dedham St.,
Boston 18, Mass.

DETROIT,
Dept. F
9960 Freeland Ave.,
Detroit 27, Mich.

NEW YORK,
Dept. F
111 Lexington Ave.,
New York 17, N. Y.

EXPERT MASONRY RESTORATION

For over three decades we have been successfully restoring masonry walls and foundations of industrial structures under every sort and condition of climate and weather.

At the first sign of moisture penetration, and before costly repairs develop, contact Western Waterproofing. FIRST IN BUILDING RESTORATION AND REMEDIAL WATERPROOFING.

WESTERN WATERPROOFING COMPANIES

ENGINEERS and CONTRACTORS . . . WEATHERPROOFING SPECIALISTS

Manufacturers' Publications

Equipment Rental Rates—Fifth Edition of "Compilation of Rental Rates for Construction Equipment" is now available. The compilation is published for informational purposes only and is not intended to suggest or to influence rates or conditions of rental. Rates listed (for 266 major items of construction equipment) represent an overall average of rentals charged by equipment distributors throughout the United States. Cost of the compilation is $3.00.—ASSOCIATED EQUIPMENT DISTRIBUTORS, 360 N. MICHIGAN AVE., CHICAGO 1, ILL.

Lodgepole Pine Facts Folder—Four-page illustrated folder lists facts concerning Lodgepole Pine, one of the associated woods of the western pines. It reviews growth range and characteristics of Lodgepole Pine, and its properties and uses in the building field. This pine is similar in properties to Ponderosa Pine and is used as siding, studding, sheathing, decking, and paneling.—WESTERN PINE ASSN., 510 YEON BLDG., PORTLAND 4, ORE.

Chemical-Resistant Coatings—Folder describes the W&W line of chemical-resistant coatings. It contains valuable information on applications for maximum chemical, moisture, and rust resistance for all metals, concrete, and wood.—THE WILBUR & WILLIAMS CO., GREENLEAF & LEON STS., BOSTON 15, MASS.

Industrial Safety Equipment—Catalog (64 pp) lists a line of eye and respiratory equipment, plus a fund of technical and reference material. This has been included to help user select proper type and style of equipment for specific hazard involved, and to provide information on use and care of the equipment. Charts throughout the catalog show at a glance the comparative features of various styles, and aid in selection of most comfortable style for the user.—WILLSON PRODUCTS, INC., READING, PA.

Aluminum Building Products—Two bulletins are now available listing Alcoa building products. Bulletin AD-137 (20 pp) contains complete information on construction and installation of the Alcoa window sills and thresholds. Feature of the catalog is an illustrated description of typical details and installation procedures. Bulletin AD-135 (16 pp) describes

(Continued on page 115)

D. V. Frione & Co., Inc., New Haven, Conn. has a $3,288,814 contract to construct the Mansfield Hollow flood control dam on the Natchaug River at Mansfield, Conn. The concrete spillway will be 690 feet long and 60 feet high. This will be flanked at both ends by earth dams totalling 12,000 feet in length.

Equipment on Flood Control Project delivers top performance

with Gulf Quality Fuels

Like many other leading contractors working on big earth-moving jobs with tough schedules, D. V. Frione & Co., Inc. selected Gulf quality fuels to power its equipment—both gasoline and Diesel—on this flood control project. And every unit is delivering top performance.

Gulf gasolines and Diesel fuels are clean-burning, have exceptionally low carbon content, and contribute to more efficient power. That's why these quality fuels are so favorably known in 30 states from Maine to New Mexico.

Write, wire, or phone today and arrange to use Gulf quality products on your next job. They are quickly available to you through 1,200 conveniently located warehouses.

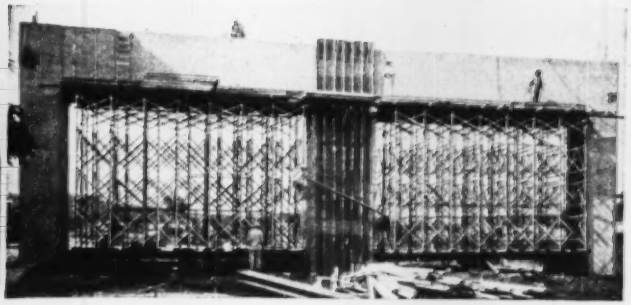
Gulf Oil Corporation · Gulf Refining Company

GULF BUILDING, PITTSBURGH, PA.

Sales Offices - Warehouses
Located in principal cities and towns throughout
Gulf's marketing territory

GULF

SAFWAY
Steel Shoring
HELPS REDUCE COSTS
ON KANSAS CITY
TRAFFICWAY JOB



Standard Equipment Supports Heavy Load; Permits Faster, Safer Work

Shoring costs were reduced substantially by using efficient Safway tubular steel equipment during construction of the Southwest Trafficway Viaduct at Kansas City, Mo. By interweaving and staggering two sets of standard steel shoring, ample capacity was provided to carry the heavy abutment beam shown above.

Use Safway shoring equipment to speed the job in building construction, bridge construction and reinforced concrete work on other large engineering projects. Standard interchangeable parts are easily assembled to any required contours and height, without special tools . . . may be stored compactly . . . can be re-used indefinitely. Fire and splintering hazards are eliminated (approved by Underwriters' Laboratories, Inc.)

RENTAL AND SALES STOCKS AVAILABLE EVERYWHERE. SAFWAY ENGINEERS WILL ASSIST WITH LAYOUTS AND TECHNICAL ADVICE

Free SAFWAY LITERATURE—
Write for Bulletin ER-450.

DISTRIBUTORS IN PRINCIPAL CITIES

SAFWAY STEEL PRODUCTS
INCORPORATED
6225 W. State St.
MILWAUKEE 13, WIS.
Manufacturers of Tubular Steel Scaffolding and Equipment

McKIERNAN-TERRY
RUGGEDLY-BUILT
PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models—heavy and extra heavy. Standardized line also contains 10 double-acting hammers and 5 single-acting hammers. Write for free bulletin.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKIERNAN-TERRY CORPORATION
Manufacturing Engineers
13 Park Row New York 7, N. Y.

High Grade Hardwood

SURVEYOR STAKES

Stained Yellow Bound with Steel Strapping

		In 1000's Lots Per 1000	In 5000's Lots Per 1000
1x2	12"	$5.05	$4.60
1x2	15"	5.15	4.65
1x2	18"	5.25	4.75
1x2	24"	6.20	5.65
1x2	30"	8.80	8.00
2x2	12"	6.50	5.90
2x2	15"	8.15	7.00
2x2	18"	6.70	7.90
2x2	24"	10.35	9.50
2x2	30"	15.00	13.65

Prices net F.O.B. Cumberland, Md.

BUCHANAN LUMBER CO.
CUMBERLAND, MD.

WELDING CONNECTORS

Saxe System Welded Connection Units for welded assembly

Saxe Units place in position and securely hold together structural parts to be welded.

As used in many welded structures they *eliminate all hole punching*, producing an economical, rigid, safe and quickly erected structural frame.

Write for 58 pg. Manual containing full engineering design information for welded structures

J. H. WILLIAMS & COMPANY
Buffalo-7, New York
Canadian Representatives
Air Reduction Canada, Ltd. Montreal 2, Canada

OHIO
LOCOMOTIVE CRANES
GASOLINE • DIESEL
ELECTRIC • STEAM

25 TO 40 TON CAPACITY

THE OHIO LOCOMOTIVE CRANE CO
BUCYRUS, OHIO

DRILLING
ANYWHERE

We look into the earth

PENNSYLVANIA
DRILLING COMPANY
PITTSBURGH, PA.

"GUNITE"
NEW CONSTRUCTION AND REPAIRS

- Prestressed Tanks
- Repair all Types Disintegrated Concrete
- Dam Reconstruction and Repairs
- Linings and Repairs to Reservoirs, Stacks, Bunkers, Sewers, Tanks, Tunnels, Pen Stocks
- Structural Steel Encasements
- Restoration of Masonry Structures

Experienced Personnel
Write for our new 48 page Bulletin
PRESSURE CONCRETE CO.
Gunite Contractors and Engineers
193 Emmett Street So. Court Street
Newark 5, New Jersey Florence, Alabama
33 N. LaSalle St., Chicago 2, Ill.
Liberty Life Bldg., Charlotte, North Carolina

Alcoa copings and gravel stops. This catalog also features a detailed description of installation procedures, and a listing of sizes and specifications.—Aluminum Co. of America, 801 Gulf Bldg., Pittsburgh 19, Pa.

Tractor-Service Manual—Instructions for proper operation, maintenance, and repair of the HD-19 torque converter-equipped crawler tractor are contained in a 287-p service manual. The manual is divided into 25 sections covering all subjects. The bulletin sells for $5.00.—Allis-Chalmers Mfg. Co., Tractor Division Service Dept., Box 512, Milwaukee 2, Wis.

Switchboards—This 8-pager describes switchboards for control of generation and distribution facilities of public and private utilities, industries, and institutions. Units listed in Bulletin 15B6139A include duplex switchboards for centralized control, bench boards for concentrated control of meters and relays, and rectifier control cubicles for rectifier auxiliary equipment.—Allis-Chalmers Mfg. Co., 1015 S. 70th St., Milwaukee, Wis.

Multi-Stage Centrifugal Pumps—Type OSMH multi-stage centrifugal pumps for boiler feed and high-pressure service are described in Bulletin 382. The bulletin describes construction of the pump, lists various modifications, and employs a 2-color cutaway drawing to illustrate its 12 important operating features. Also listed are approximate general dimensions.—American Marsh Pumps, Inc., Battle Creek, Mich.

Air Diffuser Selection Manual—Choice of proper air diffusers is simplified by this 68-p manual. It tells how to calculate required air volume and explains technique of locating diffusers and determining number of units required. Characteristics of 13 different types are listed.—Anemostat Corp. of America, 10 E. 39th St., New York 16, N. Y.

Waterproofing Compound—Instructive booklet explains handling and use of Anti-Hydro compound. This material is said to provide 100-percent waterproofness to concrete materials, build hardness and strength into monolithic concrete floors, and plug leaks in concrete against water pressure. It is also recommended to provide hard non-dusting floor toppings, bond new mortars and concrete to old, prevent freezing of concrete and masonry at temperatures to 15 deg. F., and to patch and repair old floors.—Anti-Hydro Waterproofing Co., 265 Badger Ave., Newark 5, N. J.

ADVERTISERS IN THIS ISSUE

Alberti Pipe Supply Co., Inc. 109
American Steel & Wire Co. 108
Armco Drainage & Metal Products, Inc. 2nd cover

Belmont Iron Works 83
Bethlehem Steel Co. 74
Blaw-Knox Div., Blaw-Knox Co. 68
Broderick & Bascom Rope Co. 9
Buchanan Lumber Co. 114
Byers Co., A. M. 107

Calumet Hecla Cons. Copper Co. 67
Celotex Corp., The 54
Cement Gun Co. 68
Chevrolet Motor Div. General Motors Corp. 63
Chicago Pneumatic Tool Co. 20
Clow & Sons, James B. 111
Clyde Iron Works 86
Cole, E. D. 84
Complete Machinery & Equip. Co., Inc. 7

Dewey & Almy Chemical Co. 47

Eastman Kodak Co. 53
Economy Pumps, Inc. 66
Elmes, Corp., The 11
Electric Tamper & Equip. Co. 75
Erie Steel Construction Co. 18

Fruehauf Trailer Co. 10

Gardner-Denver Co. 65
Gar Wood Industries, Inc. 58, 59
Gilson Screen Co. 91
Goodrich Co., The B. F. 1
Griffin Wellpoint Corp. 72
Gulf Oil Corp. 113
Gunite Concrete & Construction Co. 84
Gunite Construction Corp. 90

Harnischfeger Corp. 64

International Harvester Co. 14, 15

Jenkins Bros. 12
Joy Mfg. Co. 4

Kerrigan Iron Works, Inc. 61
Kinnear Mfg. Co. 90
Kinney Mfg. Co. 109
Koppers Co., Inc. 13

Lutzeford Bros., Inc. 112
Lock Joint Pipe Co. 75
Lone Star Cement Co. 18

McGraw-Hill Book Co. 50, 64
McKiernan-Terry Co. 114
Melesa Portland Cement Co. 70
Michigan Power Shovel Co. 3rd cover
Midvale Iron Works 110
Mott Core Drilling Co. 83

Newport News Shipbuilding & Drydock Co. 87
Northwest Engineering Co. 3

Orton Locomotive Crane Co. 114

Pennsylvania Drilling Co. 114
Pittsburgh-Equitable Meter Div., Rockwell Mfg. Co. 45
Portland Cement Assn. 51
Pressure Concrete Co. 114

Railway Express Agency, Air Express Div. 52
Raymond Concrete Pile Co. 73
Rust-Oleum Corp. 8
Ryerson & Son, Jos. T. 16

Safeway Steel Products, Inc. 114
Spencer White & Prentis, Inc. 83
Sprague & Henwood, Inc. 90
Stang Corp., John W. 83

Texas Co., The 6, 7
Timken Roller Bearing Co. 4th cover
Tinney Drilling Co. 84
Truscon Steel Co. 57

Underpinning & Foundation Co., Inc. 84
U. S. Rubber Co. 60
U. S. Steel Subsidiaries 22, 108
Universal Atlas Cement Co. 22
Universal Form Clamp Co. 3
Universal Mfg. Corp. 22

Vacuum Concrete, Inc. 79
Victaulic Co. of America 62
Vulcan Iron Works 55

Waukesha Motor Co. 67
Western Rock Bit Mfg. Co. 79
Western Waterproofing Co. 112
White Co., David 49
White Mfg. Co. 110
Williams & Co., J. H. 114
Winslow Scale Co. 66

PROFESSIONAL SERVICES 105

SEARCHLIGHT SECTION

(Classified Advertising)

Employment
Positions Vacant 96-97
Civil Service 96
Selling Opportunities Offered 97
Positions Wanted 97, 98
Part Time Work 98
Employment Services 97
Special Services
Contract Work 98
Educational
Schools 97
Tutoring 97
Business Opportunities
Offered 98
Notices
Proposal 92-96, 98
Property
For Sale 98
Equipment
(Used or Surplus New)
For Rent 104
For Sale 98, 105
Piling 105
Pipe 105
Rail 105
Surveying Instruments 104
Wanted
Equipment 98
ADVERTISERS INDEX 96

ENGINEERING NEWS-RECORD

Howard Quirk, Business Manager — G. F. Rogers, Sales Manager

Sales Representatives: [illegible]

PERSPECTIVE . . .

Next step in welfare

It's a mighty small contractor who's unacquainted with workmen's and unemployment compensation. And before much more time goes by, the same thing will be true of disability compensation.

Disability benefits—a cousin, perhaps, of both workmen's and jobless benefits but different from either—is law in five states, effective in three. (Rhode Island, California and New Jersey). It becomes effective July 1 in New York, and a Washington law instituting it faces a referendum next fall.

• Much legislative activity—In 1949, there were 71 disability benefit bills before the legislatures of 16 states. Such benefits are part of the federal government's overall health program and are included in a bill (H.R. 6000) on which the House Ways and Means Committee has been holding hearings. However you look at it, disability benefits are, or are about to become, a management problem. It's a problem in which the construction business will find thorny going.

Workmen's compensation developed years back from public acquiescence in the concept that a lost-time accident suffered on the job should not be permitted to pauperize either the injured workman or his dependents. Unemployment compensation stemmed from the economic ability of U. S. business and industry to support, through payroll taxes, those it could no longer employ—and from the economic need for them to do so. Disability compensation falls somewhere on a line with these predecessors. It pays about half salary or wages to employed workers who are temporarily unable to work because of off-job illness or accident.

• It's a tussle—Plainly, the establishment in law of any such new social concept will involve considerable compromise. But beyond the din of specific legislative battle, there's a more basic issue at stake.

The issue: Shall the payment of disability compensation be a state monopoly, or shall it be shared by non-public agencies, (self-insured employers, private insurance?)

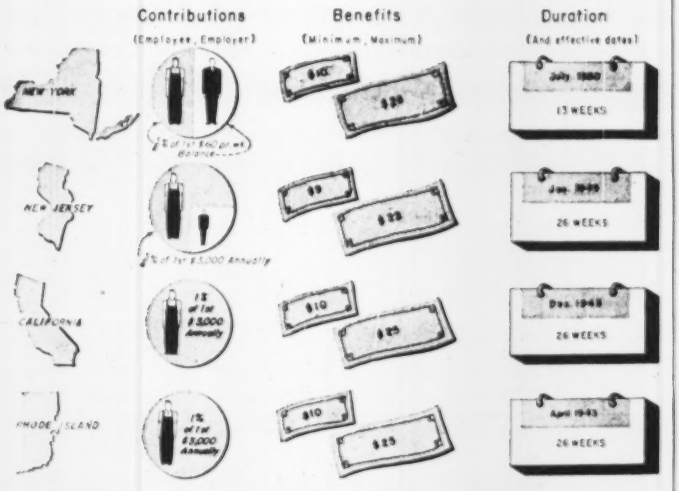
To explain it is simple.

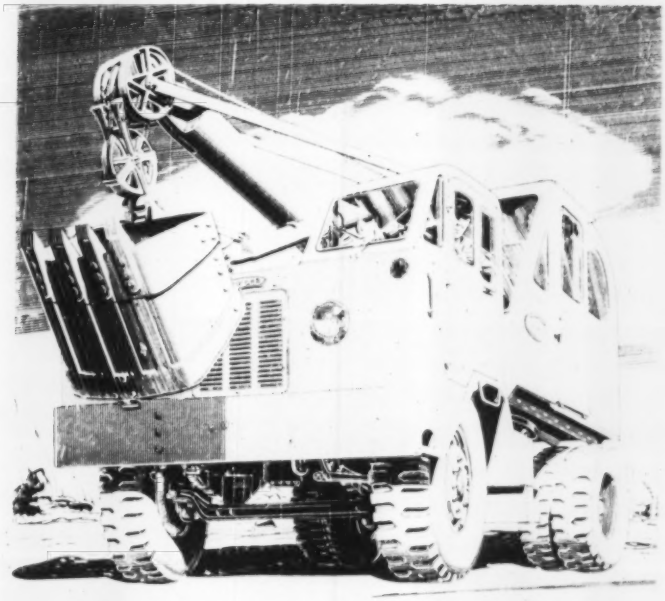
In granting workmen's compensation, the fact that John Doe was hurt while he was working for James Roe solves one big problem promptly, that of Doe's eligibility. If he hadn't worked for Roe, he wouldn't have fallen and broken his leg. Ipso facto, he's a workman and, if the claim is otherwise valid, eligible for workmen's compensation. And over the years, the incidence of such accidents has become actuarially predictable. You know how many will take place and what they'll cost. It's easy to insure against them, however you do it—and you can often do it less expensively than through a state fund.

• Jobless benefits harder—Unemployment compensation posed a vastly different problem. It's probably impossible to predict its incidence actuarially. And even if it weren't, the fact that a citizen has no job doesn't prove that he had one, or could or would take one if one were available. You must, in short, demonstrate that the jobless benefit claimant is "willing and able" to work, and that gets you into record keeping, bureaucracy and governmental control. It would be a risky operation to finance privately.

With disability compensation, you have a combination of both. Actuarially, you can tell how many workers are going to lose how much time from sickness or off-job accidents in a given period. But there's no automatic evidence that a claimant is eligible as a worker. So it's a program which can be established either way, completely government-dominated as is unemployment compensation, or publicly and privately controlled, as is workmen's compensation. In practice so far, Rhode Island has a completely government-dominated system. California and New Jersey have systems which have broken away from complete government domination but are less free than many workmen's compensation systems. New York has gone further than any in making its system a combination of public and private financing.

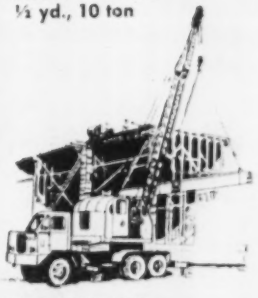
• Stable payrolls would help. Construction's ageless problem—that of an unstable working force—can complicate disability compensation as it is complicating life under Taft-Hartley. Specifically, there's the problem of which employer must pick up the check for a worker who gained eligibility while working for A but who was disabled shortly after switching to the payroll of B. Or, if he quits or is laid off and finds himself disabled before landing another job, who pays—the last employer or a state fund? Or consider the cost to the employer (all existing programs require contributions by workers, with employers paying the difference between these contributions and the cost). Won't competition between insurance companies often provide less expensive coverage than a mandatory state fund? But can't the opportunity for such competition bring about a situation wherein insurance companies take all the good risks, through competitive rates, and leave the costly risks to a state fund? The answer to each question, obviously, is yes. Management's job is to explore these and similar angles before the drive for disability compensation hits the legislatures with which management must live.





Model T6K
¾ yd., 6 ton

Model TMDT-16
½ yd., 10 ton



Model TLDT-20
12 ton

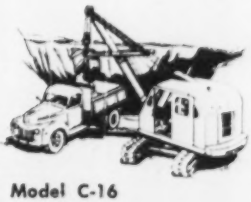
Any MICHIGAN owner will tell you

—why he bought a Michigan Truck Excavator. It could have been Michigan's famous mobility . . . the heavy duty Michigan truck chassis . . . high yardage through air controlled clutches . . . cast steel turntable base . . . hook rollers . . .

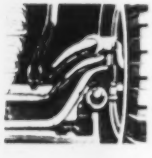
But why not let a Michigan owner tell you in his own words. Your local Michigan dealer welcomes the opportunity to show you the most complete line of ⅜ and ½ yard excavators available. It will pay you to get in touch with him *today*.

MICHIGAN
POWER SHOVEL COMPANY
500 Second Street
Benton Harbor, Michigan, U.S.A.

Series 8
½ yd., 8 ton



Model C-16
½ yd., 8 ton



EASY STEERING
Heavy duty worm and roller steering gear, 20-inch steering wheel, minimize steering fatigue and help you thread through traffic easier, get around on the job faster.

EASY SHIFTING
Smooth meshing gears, no "fighting" the shift lever or clutch pedal. Auxiliary transmission provides multiple speed range for every highway condition, for tough off-the-road travel.

POSITIVE TRACTION
Big, traction-tread tires easily pull you through deep sand, mud or heavy snow without delays. Their high flotation takes you over soft ground with far less chance of bogging down.

COMFORTABLE CAB
Operators like it! Plenty of leg and elbow room for big men. Wide angle visibility through big, rubber set windshield and windows. Familiar, automotive type controls.

How to help a walking dragline sidestep trouble

CARRYING a 180 foot boom and 25 cubic yard bucket, this Bucyrus-Erie 1150-B walking dragline sidesteps trouble with Timken® bearings at 15 critical points. Timken bearings hold shafts in alignment, reduce friction and keep maintenance time and material at a minimum.

Timken tapered roller bearings take heavy radial and thrust loads in any combination. Line contact between the rolls and races gives extra load carrying capacity. Due to the tapered construction of Timken bearings, they keep shafts in positive alignment, reducing wear on surrounding parts. Friction is virtually eliminated—thanks to the true rolling motion and incredibly smooth surface finish of Timken bearings. And because Timken bearings permit tighter closures, lubricant is retained—dirt is kept out.

Normally, Timken bearings last the life of the machine in which they are used because they are (1) engineered for the job, (2) are made of Timken fine alloy steel, (3) are precision manufactured.

No other bearing offers *all* the advantages you get with Timken bearings. They have more than fifty years of bearing research and development behind them. Insist on them in the machines you buy or build. Look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

Use this symbol as a product means all bearings are the best.

HERE'S WHERE BUCYRUS-ERIE uses Timken bearings in their 1150-B walking dragline to assure long, trouble-free service:

Swing machinery
first intermediate shaft . . upper and lower
second intermediate shaft . . . lower

Boom machinery
idler sheaves
boom point sheaves

Main machinery
intermediate shaft (hoist)
intermediate shaft (drag)

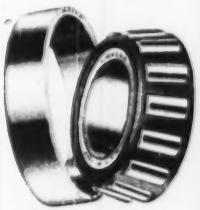
WE MAKE OUR OWN STEEL

The special grade alloy steel which gives Timken bearings their strength and resistance to wear, is made in our own steel mills.

The Timken Roller Bearing Company is the acknowledged leader in 1. advanced design, 2. precision manufacturing, 3. rigid quality control, 4. special analysis steels.

TIMKEN

TAPERED ROLLER BEARINGS



NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION